

Croplife

FOR
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No. 52

Larger Number of Boll Weevils enters Hibernation

Survey in Louisiana,
South Carolina Finds
Counts up Sharply

WASHINGTON — Reports from Louisiana and South Carolina by the Department of Agriculture and entomologist indicate more live weevils entered hibernation this year than for several years past, the department says.

The annual fall check-up has been tried on in Madison Parish, La., for years and in Florence County, S.C., for 13 years.

In Madison Parish, La., the number of live boll weevils this fall averaged 13,443 per acre—nearly three times more than the annual average found in fall surveys during the past 19 years. This year's average represents 2.6 times more weevils than were found in the previous high-record year (1953) and five times the average number found a year ago.

This fall's examinations in Florence County, S.C., showed an average of 11,398 boll weevils per acre—the highest number found entering hibernation.

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Ohio Equity Exchange Starts Production of Granular Plant

RESTLINE, OHIO — The Ohio Equity Exchange Co. of Lima, Ohio, has begun construction on a fertilizer manufacturing plant here. According to Albert B. Calvelage, treasurer, the plant will have a storage capacity of 100 tons. Bagging and shipping will be in a separate building along with storage space for bagged product.

Weatherly controlled-granulation to manufacture 20 tons per hour of closely sized product is included in the construction. The plant was designed by The D. M. Weatherly Co. of Atlanta, Ga.

History of Corn Borer Control With Granular Materials Is Told by Entomological Team

AMES, IOWA — More than 130 men representing industries supplying chemicals for agriculture, the equipment manufacturers and hybrid seed firms from companies in 14 states (Nebraska to New Jersey) gathered at Ames on Dec. 9 to talk with the three men who showed the way to fight corn borers with granular insecticides.

They heard research results and asked questions with Dr. Tom Brindley, in charge of the Regional

American Cyanamid To Build Triple Super Plant in '56

NEW YORK—A new triple superphosphate plant at Brewster, Fla., will be part of American Cyanamid Co.'s \$40-50 million plant expansion and modernization program in 1956.

Announcement of the proposed plant, which will have a capacity of 200,000 tons annually, was made Dec. 19 by K. C. Towe, president of American Cyanamid, in speaking before the New York Society of Security Analysts.

The new plant will be American Cyanamid's first facility for production of upgraded phosphate. The firm's basic interest in the past has been in raw phosphate rock.

Sales of American Cyanamid's triple superphosphate will be made to fertilizer manufacturers. The trend to

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New Farm Plan Calls for Soil Bank and Compromise on Level of Price Supports

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON — A patch-work farm program revealing little new in major farm aid techniques and probably designed to hold wavering farm votes for the Republicans is now being contemplated by the Benson administration for presentation to the second session of the 84th Congress. However, the amount of new money to be poured into the farm belt under the program being considered is called by some observers here wholly inadequate for the needed all-out attack on declining farm income or for building a solid base for a new farm problem solution.

The Benson program announced recently is a little of this and a little of that while the secretary holds to his flexible price support principles.

The truth of the situation, according to observers here, is precisely this—both the rigid high price support

At Cotton Conference

Rainfall and Temperature Seen as Factors in Reported Resistance by Boll Weevils

MEMPHIS—The problem of the reported resistance of boll weevils to some of the chlorinated hydrocarbon insecticides was one of the topics receiving attention at the first annual Beltwide Cotton Production Conference, held here Dec. 15-16.

Dr. F. C. Bishopp, entomologist, Silver Spring, Md., told the conference that despite the appearance of resistance by the weevils in some areas, it would be folly to throw overboard the accepted and recommended control practices. Dr. Bishopp's talk is

reprinted on page 20 of this issue of Croplife.

A preliminary and unedited excerpt taken from the conference report on cotton insect research and control was distributed at the end of the meeting.

That excerpt, in part, stated:

"From laboratory tests, field experiments and farmer failure it is concluded that boll weevils have developed degrees of resistance to the chlorinated hydrocarbons in localized areas of Louisiana.

"In 1955 farmers failed to control boll weevils in localized areas in other states, particularly in the South Delta area of Mississippi and in a small section of southeastern Arkansas. Although resistance may be suspected in these areas, positive evidence of resistance does not exist as in Louisiana.

"In most of the localities where farmer failures were common, weather conditions were extremely favorable for boll weevil multiplication and on the whole unfavorable for satisfactory application of insecticides. Owing to high fertilization of the land and excessive rainfall, cotton made a quick rank growth, which resulted in very little, if any, climatic control.

"With a relatively high initial infestation, this resulted in an un-

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Ozark-Mahoning To Build Ammonium Phosphate Plant

TULSA — Ozark-Mahoning Company, Tulsa, will build an ammonium phosphate fertilizer plant here at a cost to exceed one million dollars, it was announced recently by C. O. Anderson, president.

The new facilities will adjoin the existing plants which the company operates in West Tulsa. The new plant will have a capacity to produce about 50,000 tons per year of high analysis water soluble complex fertilizers.

Ozark-Mahoning Co. has been producing sulfuric acid in Tulsa for over thirty years. It has a large, modern sulfuric acid plant and will utilize large quantities of this output in production of the new fertilizer.

The new plant will embody the latest developments in the production of phosphoric acid and granulated fertilizer, Mr. Anderson said. A Sub-

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advocates and the moderate or flexible support followers find themselves in a blind alley from which they are seeking an outlet. They realize now price supports as the cornerstone of a farm program do not supply the answer. Consequently, to cope with this dilemma, the U.S. Department of Agriculture now appears to be contemplating a mixture of rigid and flexible supports, thereby saving face for the high support followers through which they can go to their farm constituents and proclaim they are providing an opportunity for them to obtain 90% of parity support.

This device consists of a plan for a differential of support on quality. For wheat, for example, what would be defined as a "desirable" variety of wheat would be supported at 90% of parity and the "less desirable" varieties would be supported at a somewhat lower level of parity. Just how a variety would be defined as "desirable" is not clarified by USDA, but trade sources sense a bitter fight over that detail. It generally has been the sense of the congressional leaders that those varieties of wheat which have accumulated in sterile government surpluses are seen as "undesirable."

However, the idea has box-office

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Corn Borer Research Laboratory at Ankeny, Iowa; Dr. H. C. Cox, who did much of the testing of granular materials in the field, and Walt Lovely, agricultural engineer who developed the ground applicators used in the experiments. All three men work cooperatively with Iowa State College and the U.S. Department of Agriculture.

This method of controlling the European corn borer—first reported

(Continued on page 21)

Big Increase in 1956 Grasshopper Infestation Seen

Little Change in Threat of Mormon Cricket Expected

WASHINGTON — Next year's grasshopper threat is expected to be more than three times that of 1955 on western rangelands, while Mormon-cricket abundance will probably be the same as this year, the U.S. Department of Agriculture has announced.

Preliminary survey findings of next year's expected grasshopper and Mormon-cricket incidence indicate that grasshopper populations will occur in 1956 on more than 20 million rangeland acres in 16 states, compared to the 6 million acres forecast in the preliminary estimate for 1955.

They are Arizona, California, Colorado, Idaho, Kansas, Missouri, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming.

It is anticipated that about 100,000 acres of rangeland in six of these states will need treatment in 1956 to prevent Mormon-cricket damage. They are Colorado, Idaho, Montana, Nevada, Utah and Wyoming.

In 1955, almost 1,650,000 acres of rangeland in 11 states were treated with insecticides to control grasshoppers, and 95,633 acres were treated in six states for control of Mormon-crickets.

Next spring, trained observers will again survey threatened areas. They will judge, from the number and kinds of young grasshoppers and Mormon-crickets they find, what toll predators, parasites, diseases and weather have taken of the potential insect population. Final plans for 1956 control work will be based on this corrected picture.

Cattlemen and sheepherders, and to a lesser extent prospectors and hunters, have for more than 20 years been aiding USDA, state, and local insect-control officials by reporting on grasshopper and Mormon-cricket activities in remote areas.

During the last two or three years, uranium hunters have been prospecting intensively in many rangeland grasshopper and Mormon-cricket areas. Because they must get their Geiger counters down on the ground to test radioactivity, they get a close look at insect life. And because they must know the precise geographic locations of their hunting grounds if they are to stake claims, their reports are usually accurate and easily checked by trained insect-survey personnel contacting them.

All this information ties in with the late-summer and fall "prediction" surveys for grasshopper adults and eggs, which supply information used in planning the next year's large-scale control operations.

To learn where, how many, and what kinds of grasshoppers are present, USDA surveyors count the actual number per square yard at sample stops in areas that usually harbor these pests. Later in the fall, they go back to see if the outlook remains the same or if a shifting of adult egg-laying insects has changed the infestation picture. They shovel a measured square foot of soil into a sifting screen, or scrape away plants and dig into the soil, to expose and count grasshopper egg pods.

From these counts the coming year's infestations are rated from "normal" to "very severe." Data from both adult and egg surveys go to make up maps and estimates of the potential infestation picture for the succeeding year.

Granular Production Started at Ohio Cooperative Plant

MT. GILEAD, OHIO—Production of granular fertilizer has been started at the new Sims Chemical plant of the Ohio Farm Bureau Cooperative Assn. near here and regular shipments are expected to start some time after Jan. 2. The plant, described as a completely modern fertilizer operation is geared to produce 70,000 tons annually.

Processing operations are on an almost completely automatic basis. Raw chemicals are received by rail and elevated to the top of a 90-foot tower, from whence they move by gravity through the various processing stages. Finished granular and pulverized compounds are transferred to 400-ton storage bins where the products await shipment by rail or truck in either bulk or bagged form.

Pilot plant research was conducted at the co-op's Dayton, Ohio fertilizer plant as a guide in laying out the new Sims plant.

Location of the new manufacturing facility is on a 30-acre tract 7 miles north of Mt. Gilead, where seed and fertilizer tests are to be carried on under actual farm conditions.

The plant was named in honor of John W. Sims, leader in the farmer cooperative movement, who retired last August as executive vice president and general manager of this Buckeye Farm Bureau Co-op.

Five other fertilizer manufacturing plants are operated by this farm supply organization at Glendale, Maumee, Marietta, Alliance and Dayton, Ohio.

Chemical Industry Has Biggest Year in History During 1955

WASHINGTON, D.C. — Chemical industry sales during 1955 will reach an estimated \$23 billion, a new, all-time high. This represents a 17.6% increase over 1954 sales of \$19.5 billion, according to the Manufacturing Chemists' Association. America's fourth largest industry continued expansion of plants and facilities at a high level during the year and, based on preliminary estimates, total investment in plant expansion will exceed \$1 billion for the fifth consecutive year.

Based on six-month figures from government sources, profits after taxes for the first half of the year were \$777 million compared with \$585 million for the same period in 1954. Also according to the government, cash dividends paid by the chemical and allied products industries were \$379 million for the first half of 1955, some 16.6% higher than the \$325 million paid during the first six months of last year. Chemical industry payments represented 13% of all cash dividends paid by manufacturing industries during the period.

Projecting first half payments, it is estimated that the chemical and allied products industries will pay an estimated \$1.4 billion in federal taxes alone during 1955.

Paul E. McCoy Joins American Potash

LOS ANGELES—American Potash & Chemical Corp. has announced the appointment of Paul E. McCoy to the company's sales development department at its New York office.

Mr. McCoy attended Columbia University and received a bachelor's degree as a chemistry major and, in 1952, his master's degree in business administration. He came to American Potash & Chemical Corp. from Grace Chemical Co. where he was in chemical sales and market research and development.

Malcolm E. Hunter New Vice President Of Nitrogen Division

NEW YORK—Malcolm E. Hunter has been appointed a vice president of Nitrogen Division, Allied Chemical & Dye Corp. He will continue to be in charge of sales, having formerly performed this function as assistant to the president. Announcement of the appointment was made by Hugo Riemer, Nitrogen Division president.

A native of Owings, S.C., Mr. Hunter has been a sales executive in Nitrogen Division for five years. Prior to that, he was general sales manager of the Fertilizer Division of Virginia-Carolina Chemical Corp., Richmond, Va. Mr. Hunter is located at Nitrogen Division's main office at 40 Rector St., New York City.

Max Minnig Named President of Witco Chemical Co.

NEW YORK—Max A. Minnig was elected president of Witco Chemical Co., to succeed Robert I. Wishnick, who was advanced to chairman of the board and chief executive officer at the annual meeting of the board of directors recently. William Wishnick succeeds Mr. Minnig as executive vice president.

Mr. Minnig joined Witco in 1946 as head of the Natural Gas Division. He then transferred to the sales department and was elected vice president in 1950 directing the sale of carbon black and rubber chemicals with headquarters in Akron. Subsequently appointed director of sales, he came to the executive offices in New York and became executive vice president in 1953. A graduate of the University of Oklahoma in 1940, Mr. Minnig served as a colonel in the Air Corps, during World War II.

William Wishnick, the newly-elected executive vice president, became affiliated with the company in 1942 at the Lawrenceville plant. He served in the Air Corps during World War II and afterwards learned manufacturing operation in Witco plants at Chicago and Perth Amboy. He then acquired Witco sales experience and joined the executive offices in New York, becoming treasurer in 1951 and a vice president in 1953. He is a graduate of the University of Texas.

Merry Christmas From Diamond

CLEVELAND — About 5,400 employees of Diamond Alkali Co., Cleveland, received a Christmas gift of approximately \$730,000, it was announced by John A. Sargent, president.

"Representing two and one half per cent of each employee's individual earnings for a one-year period, this gift by Diamond marks the 20th consecutive year our company has made a cash Christmas gift to our employees," Mr. Sargent said.

Minerals & Chemicals Moves to New Jersey

MENLO PARK, N.J. — Minerals & Chemicals Corporation of America has moved its Philadelphia and Metuchen, N.J. operations to new general offices here. The move included the subsidiary companies of Speedi-Dri Corp., Porocel Corp. and Minerals Separation Division. Telephone number at the new offices is Liberty 8-2200.

The firm's research facilities at Camden, N.J., Carlsbad, N.M., Lakeland, Fla. and McIntyre, Ga. will be moved to the new Minerals Research Center at Menlo Park about Jan. 15.



Jerome Brim

Wilson & Geo. Meyer Opens Denver Office For Phosphate Sales

SAN FRANCISCO—L. N. West, executive vice president, Wilson & Geo. Meyer & Co. Intermountain Pacific Coast distributors of agricultural and industrial chemicals, recently announced opening of a new office of the firm in Denver, Colo., in charge of Jerome Brim.

The new office, located at 851 North Broadway, was opened primarily to handle distribution, in the mountain and plains States, of the concentrated phosphate products of the new plant of Western Phosphates, Inc. at Garfield, Utah. Mr. West said.

Western Phosphates, Inc. is jointly owned by American Smelting and Refining Co., Kennecott Copper Co. and Stauffer Chemical Co., Wilson & Geo. Meyer & Co. Intermountain is exclusive sales agent for the 135,000 ton annual output of its plant.

Mr. Brim is a graduate of the University of Nebraska in agronomy and soils. He has been soil scientist for the U.S. Bureau of Reclamation at McCook, Neb., plant manager for the National Fertilizer Co. division of National By-Products, Inc., Des Moines, Iowa, and is president of the Colorado Soil Improvement Association. He served in the army 1945-46.

The Meyer firm maintains its headquarters in San Francisco and has district offices in Los Angeles, Portland, Seattle, Salt Lake City, Phoenix and Fresno, as well as Denver.

Dow Chemical Opens New Buffalo Office

MIDLAND, MICH. — The Dow Chemical Co. has announced the opening of a sales office in downtown Buffalo at 70 Niagara St., to service a territory that covers a substantial part of New York state, extending east to and including Utica. It also will serve a 10-county section of northwest Pennsylvania.

Establishment of the new office is Dow's sixteenth located in major cities throughout the U.S., in line with the company's over-all program to broaden sales activities for improved service to markets in growing industrial areas, according to Donald Williams, vice president and director of sales.

Manager of the office is Eugene Martinez, who was advanced to the post after nearly 10 years as general chemicals salesman with the company's office in New York City.

The sales staff includes two chemical salesmen, Seward H. Mott, Jr. and Gerald L. Mitchell, and four plastics salesmen, Ross D. Visger, plastics supervisor, Robert F. Bunke, Robert S. Crew and Donald W. Ruoff.

Long Way Yet to Go Despite Efforts to Control Budworm in Southwest Forest Areas

ALBUQUERQUE, N.M.—The U.S. Forest Service spent more than half a million dollars this summer fighting the spruce budworm in New Mexico and Arizona national forests and still reached less than half the number threatened by the insect. This was revealed in talks given before the third meeting of the Southwest Forest Pest Study and Action Committee—a group that includes business and government forest leaders—a meeting here recently.

James A. Egan of the Southwestern regional office of the Forest Service described forest pest control activities held in 1955 and planned for 1956. He said that the Forest Service achieved 93% effectiveness in the aerial spraying of 446,611 acres of spruce (Crophlife, June 6) in selected areas of New Mexico in June and July. DDT in an oil solution was sprayed at a project cost of \$626,003.

But Dr. Calvin Massey of the U.S. Forest Insect and Disease Laboratory in Albuquerque pointed out in a technical report that a million acres of mixed conifer and spruce fir timber in the two states were infested with the budworm in 1955.

The 1955 control program here—largest ever attempted—concentrated in certain areas of the Lincoln, Santa Fe and Carson Forests of New Mexico. Next year, the Forest Service plans a more limited control program in the Kaibab National Forest and Grand Canyon National Park in Arizona and a part of the Cibola National Forest in New Mexico.

Dr. Massey pointed out that important budworm infestations on the Santa Fe, Carson, Cibola and Kaibab forests increased in intensity during the past season, as did a newly-discovered infestation on the Chuska Unit of the Navajo Indian Reservation.

Other enemies of forests noted in Dr. Massey's report were the Douglas-fir beetle—which killed over 10 million board feet of timber in 1955—and the southwestern pine beetle which, with its associate bark beetles was responsible for killing approximately 131 million board feet of ponderosa pine during 1954 and an increased amount this year.

No great strides against these infiltrators were made during 1955, Dr. Massey said, although encouraging progress was reported in dealing with the tent caterpillar which has long been responsible for defoliation of aspen.

Among the 1956 control projects announced by the Forest Service were: a continuing program in Carson National Forest for spraying of 1,000 acres—at a cost of \$1,350—for the Black Hills beetle; and a continuing program against the tent caterpillar among the aspen in the North Kaibab approach to the Grand Canyon. Both projects were active in 1955; some 320 acres in Carson were sprayed this year at a cost of \$1,572.

An appeal for additional research on both forest insects and tree diseases was made at the meeting by Arthur Upson of the Western Pine Assn., secretary of the Action committee and head of its research subcommittee. Mr. Upson said: "There is less knowledge of prevention and control here than in any other area of the United States."

He pointed out that death losses and loss of growth from tree diseases amount to 275 million board feet a year because of insects and another 300 million because of disease. He also pointed out that,

while some good controls have been devised for insects, there is "virtually no control" of disease because of lack of knowledge as to causes.

"People are very conscious of the other big forest destroyer—fire," Mr. Upson said, "but they walk right by the insects and diseases that cost much more in valuable timber."

Lion Forms Development, Engineering Sections

EL DORADO, ARK.—J. B. Rogerson, vice president in charge of manufacturing for Lion Oil Co., a division of Monsanto Chemical Co., has announced the creation of development and engineering sections within the company's manufacturing department.

John A. Sherred of St. Louis, who has been director of research development for Monsanto's Plastics Division, will be transferred to the Lion Oil Co. division as director of development, effective Jan. 16, 1956.

Frank L. Emert, who has been assistant manager of the El Dorado refinery, is being promoted to the post of director of engineering. Mr. Rogerson also announced that H. Harold Bible, formerly assistant manager of manufacturing, has been named director of manufacturing.

Expect Heavy Infestation Of Grasshoppers in 1956

TRINIDAD, COLO.—Serious infestations of grasshoppers on 500,000 acres of Las Animas County may be expected in 1956, according to county agent Ralph Kotich who spoke before the recent meeting of Southern Colorado Livestock Assn. He urged that the Colorado legislature be asked to allocate funds for combatting the pests when the body meets in January.

FARM AND HOME WEEK

NEWARK, DEL.—Delaware agriculture's big winter yearly get-together, Farm and Home Week, is set for Feb. 7-9.

150 Attend Texas Turf Grass Conference

COLLEGE STATION, TEXAS — Wylie Moore of the Stevens Park Golf Course, Dallas, Texas, was elected president of the Texas Turfgrass Assn. during the recent Texas Turfgrass Conference at Texas A&M College.

Bob Frazer of the Parks Department at San Antonio was elected vice president, and D. A. Lynch of East Texas State Teachers College at Commerce, was elected executive secretary. A. W. Crain of Goldthwaite's Texas Toro Co. at Houston was re-appointed editor of Turf News. About 150 attended the conference.

During the meeting, Dr. E. O. McLean of the agronomy department at the University of Arkansas, Fayetteville, told the group that "a plant must 'take' its food from the soil."

While discussing the "cationic" effect—closely related to molecular attraction—between particles of soil and the smaller particles of chemical nutrients, Dr. McLean said the root must be able to exert a stronger attraction on the nutrient particle than can the soil particle—or starve.

"Therefore, we need to go farther than the present soil fertility tests in order to understand a soil's potential," he said.

Dr. O. B. Lunt of the Irrigation Department, UCLA, Los Angeles, said that compaction of soil—the process of packing which makes soil tighter and less conducive to plant growth—is greatest when moisture is near field capacity.

Wet soils suffer more from structural deterioration than from compaction, Dr. McLean said. He also described the effects caused by layers of soil, and outlined uses of sand to prevent compaction in such areas as golfing greens.

Increase in Use of Liquid Fertilizer Seen by Cooperative

PORTLAND, ORE.—A liquid fertilizer sales volume of \$1,500,000 in 1956 for cooperatives affiliated with Pacific Supply Cooperative was forecast here recently by Charles Baker, general manager of Pacific Supply, during the firm's annual convention.

Mr. Baker reported on installation of liquid fertilizer plants and distribution facilities this year in eastern Oregon, eastern Washington and northern Idaho. He said that still more expansion is in sight.

Karl Baur, chemicals division manager, said that Pacific this past season assisted local co-ops to apply liquid fertilizer on 75,000 acres of land in the three states. He predicted that use of a 32% nitrogen spray solution would become increasingly popular with farmers for use on wheat and other crops.

Illinois Spray Operators School Scheduled Jan. 26-27

URBANA—The eighth annual Custom Spray Operators Training School will be held Jan. 26-27 at the University of Illinois.

Regular sessions, to start at 10 a.m. Jan. 26, will include discussions of new control measures, new insecticides, new regulations and the outlook for the 1956 insect situation.

A smoker is planned from 7:30 to 9:30 p.m. Jan. 25 at the Illini Union Building to enable those coming early to find old friends, make new acquaintances and register early.

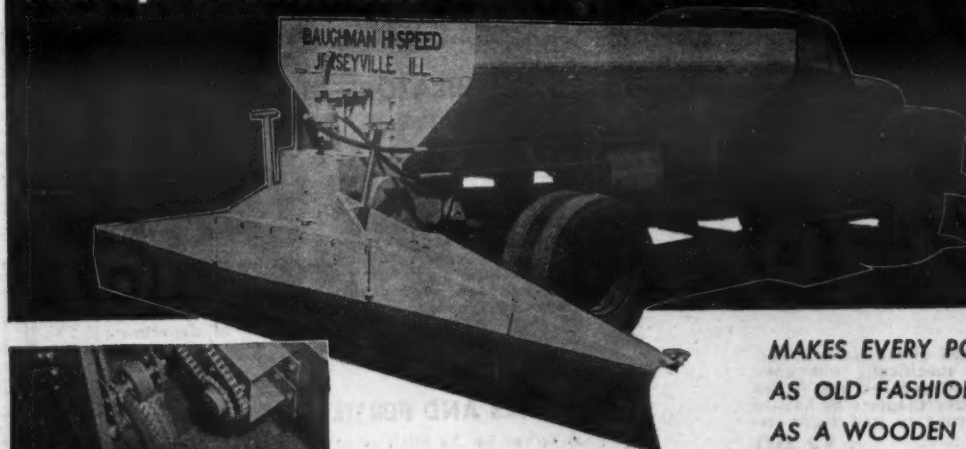
Simultaneous meetings of the Agricultural Spraying Assn. and the Illinois Aerial Applicators Assn. will precede the regular sessions.



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FARM PLAN

(Continued from page 1)

appeal, according to the political fishermen, since it compromises with the rigid and flexible price support followers.

The next compromise step in the Benson program would be that of the so-called "soil-bank." The use of the word bank is an artful device since it cloaks a land rental program with the comforting description of "bank." This item of the program is a variant of the Agricultural Conservation Program fund, appearing to liberalize the provisions of the ACP bulletin and make more funds available over those allotted by Congress annually. It is a device to bypass the plan for a diverted acres ban once approved by Mr. Benson last year and later discarded.

Analysts of the Benson announcement say that the amount of money

which will be available for the "soil bank" will be governed by the budget balancing plans of the administration and consequently will be inadequate to meet the full requirements for reducing production of such major crops as wheat, corn and cotton. These observers feel that not less than \$2 billion a year would be required to compensate producers for the amount of land which would have to be withdrawn from production of these three crops if supplies are to be brought into line with demand. These observers believe that wheat production would have to be cut to as little as 500 million bushels and cotton to approximately 5 million bales—drastic action for farmers growing these crops if they are not to be permitted to plant other crops on land removed from the basic crop production. Such a reduction would cut deeply into gross farm income and some compensatory payment would be necessary to hold these farmers in line as the nation goes through the long drawn out period of liquidating surpluses.

Previous statements from USDA indicate the department contemplates removal of about 25 million acres from production of wheat, cotton and corn. To top USDA officials this means merely the withdrawal of the poorest land from production of these crops, resulting in little modification of crop outturns since producers can, through modern farming techniques,

expand output from the land remaining in cultivation. Plant food industry officials have talked of a technique wherein 75 million acres could be taken out of these crops—some of which would represent the best farming land of the nation—yet at the same time foreseeable requirements for cotton, wheat and corn could be sustained until the accumulated surpluses have been removed.

Limit Rumored

Although the price support gymnastics are seen as a compromise to hold wavering farm votes, USDA probably plans to go a step further and put a maximum limit on the amount of a farm crop which could be placed under high price support protection. Rumor has it that it would be limited to \$25,000 a year for any one farm operation. This is seen as a guesswork decision, aimed at the so-called factory farms and a stop to the small farm unit. There is no solid basis on which to judge the operation of this phase of the USDA planning and consequently it should be marked off as political sweetening to woo the small farm operator.

Essentially a maximum limit on loan protection, even if the operator produces top quality products, is little less than a penalty on efficiency—just a step short of controls of marketing on a bushelage or pound basis for a crop.

It is now understood that in regard to compensation to farmers who withdraw land from field crop production, the USDA plan calls for paying them in kind—payments to be made in delivery from Commodity

Credit Corp. stocks, for example, wheat, cotton, corn or such other surpluses as the farmer may request. This plan is already under criticism by responsible Republican Senate leaders who sense that farmers who took such compensation would promptly resell these receipts back into the market and further depress domestic price levels even if acreage reductions tended to influence higher new crop price effects.

The foregoing items are on the restraining side designed to hold the farm vote in line and at the same time provide a check on production while surpluses are removed.

On the constructive side—the removal of surpluses—the USDA is in the realm of vague generalities, restating plans to promote surplus disposal in world markets whereas within the USDA itself there is clear understanding that the U.S. is about at the peak of such operations now, and there is only the barest hope that the current level can be sustained even through the device of Public Law 480—which top USDA officials frankly dismiss as an example of the worst type of legislation.

Other Aspects

Other aspects of the Benson program which will go to Congress are largely reshapes of previous plans he has intimated, such as increased money for agricultural product use, research, and relaxation of some present controls which would exempt from wheat acreage allotments wheat grown on farms where it would be used for feed.

The Benson announcement met with relatively small response from eastern newspapers, even those which have supported the secretary's policies vigorously. The New York Times, which came to his support this week in an editorial attack on high price supports, buried the announcement of the farm program way back in the paper.

As a vote-gatherer, observers here see the Benson program—if the disclosure this week represents all the meat—as a penny-pinching instrument, which may boomerang and do more harm than good. It is entirely possible, says one Republican farm bloc leader, that before the last roll call is taken in Congress on the farm legislation, the Benson program may be drastically reshaped.

BOLL WEEVIL

(Continued from page 1)

nation during the 13-year period that surveys have been made in the county. This represents 2.3 times more weevils than the long time average, and nearly five times the average number of weevils found a year ago.

These surveys give cotton growers state and federal entomologists, industry and insecticide processors and dealers a clue to the likely boll weevil situation next year. However, the entomologists point out, weather conditions this winter will greatly affect the numbers of weevils that enter cotton fields early next summer. Surveys will be made again in the spring to determine how many weevils survive hibernation.

Cooperating entomologists of the state agricultural experiment station and USDA's Agricultural Research Service make these determinations by examining samples of surface woods trash adjacent to cotton fields where the weevils normally overwinter.

PIPE FACTORY

LUBBOCK, TEXAS — The first plastic pipe factory of its kind has been opened here in Lubbock. It is the Southwest Industrial Products Company, and is now making plastic pipes for both underground and surface irrigation water. The new company is owned by V. T. and L. J. Leaverton.

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A symposium — published jointly by the American Society of Agronomy and the National Fertilizer Association.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents, and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color. . . . \$4.50

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Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound. . . . \$3.00

THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color. . . . \$3.00

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbeart H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages. . . . \$8.00

COMMERCIAL FERTILIZERS, the World Economy in War and Peace (Nov. 1955)

Mirko Lamer

A Stanford University Research Institute book. 640 pages, charts, index, references. Plant nutrients and the environment, classification of fertilizers, availability of nutrients, yield response, consumption in various countries and the production potential. International trade in fertilizers. . . . \$10.00

PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A textbook giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarp, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages. . . . \$5.50

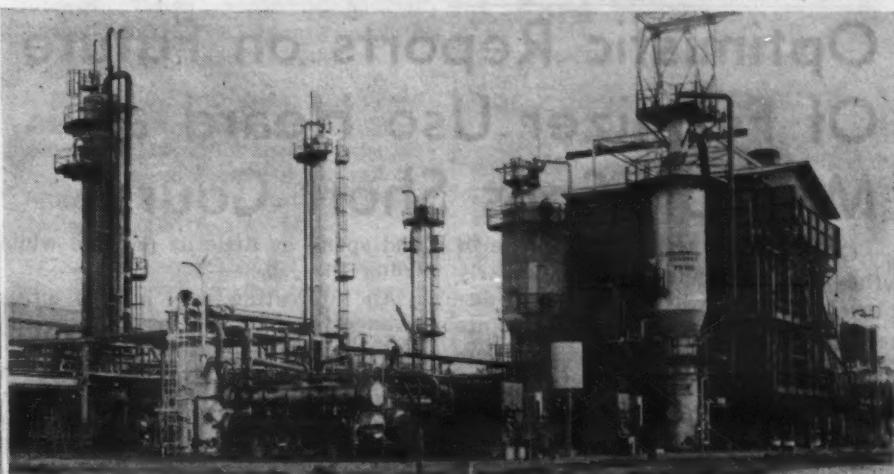
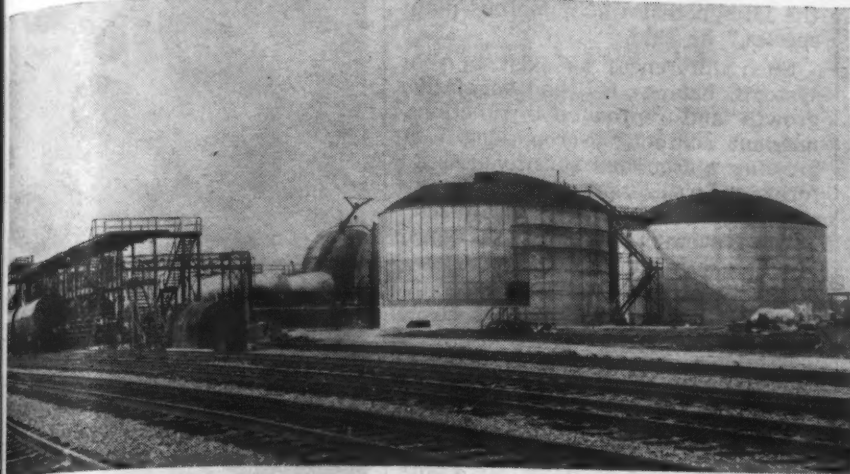
MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data. . . . \$2.50

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SCENES AT NEW SOHIO PLANT—Across top: Carloading facilities with aluminum ammonium nitrate storage tanks at the right and solutions blending facilities in background. Two aluminum tanks hold 35,000 barrels each of 88% ammonium nitrate solutions. Each tank measures 80 ft. in diameter. Right above: general view of new Sohio ammonia plant.

At right: Basic unit of plant, the ammonia plant. Furnace is on the left and the gas scrubbers for removal of sulfur and the scrubber towers are in the right foreground.

Bottom: These four storage spheres for ammonia are of high pressure steel design for storage of off-season production so that constant production may be maintained to meet peak shipping demands.

AMMONIA ON THE WAY

Sohio Chemical Company's \$17 Million Petrochemical Plant Makes First Shipment

LIMA, OHIO—First shipments of products to customers were dispatched Dec. 15 by the Sohio Chemical Co. from its new \$17,000,000 plant here as work is being pushed to complete the other units in the modern petrochemical plant.

One carload each of aqua ammonia, urea ammonia solutions, nitric acid, and ammonium nitrate solutions comprised this first shipment. Initial delivery of urea by Sohio is scheduled to be made in February, according to Edward F. Morrill, president.

While some products will be shipped during the next few weeks, the bulk of production will go into storage for inventory so that better service may be given when full-scale shipment schedules start in January, the company says.

"Where only a few months ago was a nine-hole golf course, the Sohio plant is now nearing completion as one of the most efficient petrochemical manufacturing plants in its field," states Mr. Morrill.

"Construction still goes on with the last unit, the CO₂ plant, scheduled to go into production in early May. One hundred and eighty men and women will be employed by the company.

The plant's nitrogen products are

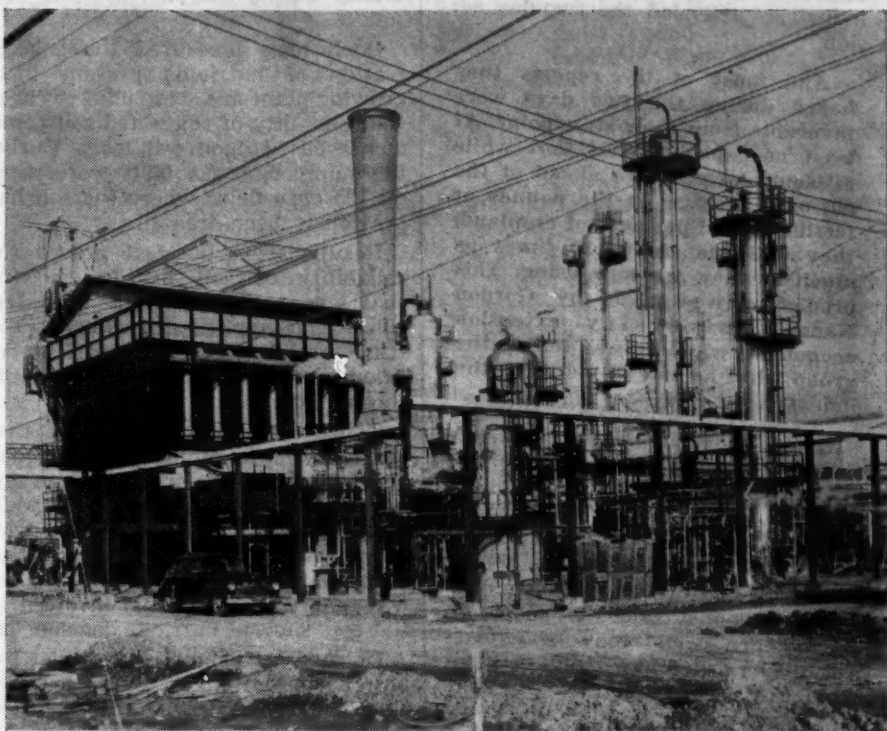
being sold to manufacturers of conventional dry fertilizers, the producers of liquid fertilizers, and for direct application to the soil. The many formulae of ammoniating and nitrogen solutions provide the proper material for the most complex requirements.

Sohio chemical products to be marketed through agricultural channels include anhydrous ammonia, aqua ammonia, ammoniating solutions, nitrogen solutions, urea fertilizer compounds, and feed grade urea. Sohio offers a selection of 13 varying combinations of ammonia, ammonia nitrate, and urea in the "Sohlogen" and "Sohlogro" solution line, according to H. J. Coleman, sales manager.

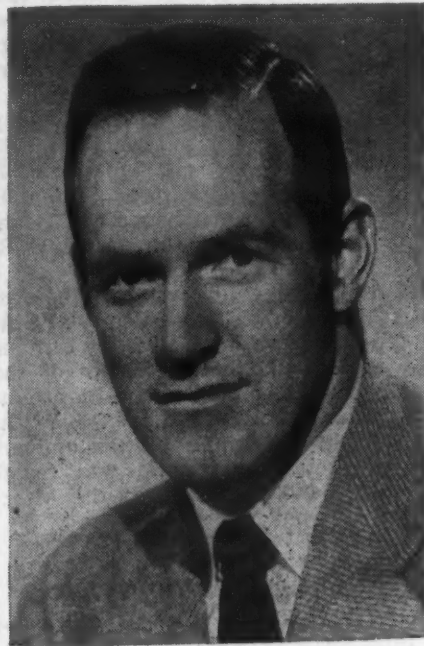
Other Sohio products marketed through industrial channels include refrigeration-grade ammonia, aqua ammonia (A-grade), urea, and nitric acid 36 to 40° Be.

Ample storage facilities for ammonia, ammonium nitrate, nitric acid, and urea have been provided at this plant to permit a buildup of reserves before the start of peak season shipments, so that normal shipping capacity may be increased if necessary, during critical high-consumption periods. These storage facilities are ex-

(Continued on page 8)



Edward F. Morrill
President



Henry J. Coleman
Manager, Sales Division



Hubert H. Tucker
Agricultural Service Director



Donald G. Stevens
Mgr., Manufacturing Division

Optimistic Reports on Future Of Fertilizer Use Heard at Missouri Soils Short Course

COLUMBIA, MO.—The future of the fertilizer industry—particularly in Missouri—was thoroughly discussed from several different points of view by speakers at the Soil Fertility and Plant Nutrition Short Course at the University of Missouri Dec. 15-16. An audience of approximately 250 representatives of the Missouri and out-of-state fertilizer industries attended the two-day session.

And most of the reports they heard during the two days were favorable from their standpoint. At least one speaker said that while Missouri farmers are ahead of the national average on the pounds of fertilizer used per acre of cropland, they will use six to 10 times as much as they are now using. This prediction was made by Gordon Nance, university extension economist, while he was telling the group what he saw in store for the industry.

In his talk, Mr. Nance said that one of the marvels of the ages to him is why farm people who know full well the value of fertilizers do not use the material to the point where the last increment applied returns only the interest rate.

The economist said the people in his audience would only be embarrassed if he asked how many of them owning farms used fertilizers to that point. Even people who should know the value of fertilizers better than any other single group fail to take the greatest possible advantage of them, he pointed out.

"Don't ask me when we will use six to 10 times as much fertilizer as we do now," Mr. Nance said. "It is likely to be several years but I'm certain that the increase in the use of fertilizer in the next decade will be two or three times as rapid as in the last 10 years."

Looking ahead for the 1956 crop year, the veteran economist said even though farmers did not fare so well financially during the past year, he does not expect any significant decrease in the tonnage of fertilizer sold in the state. Rather, he expects a considerable increase.

He bases this prediction on the fact that even though farm prices fell this year, income was even or above that of 1954 when production was severely cut back by dry weather. Also, the weather was such that fertilizer paid off better than usual this year.

Another speaker concerned with the financial squeeze facing the state's farmers was J. W. Burch, director of the Missouri Extension Service. He refuted the sweeping statements made by some people that farmers should quit using fertilizers considering their present plight.

"Certainly, this is not the time for the farmer to quit using fertilizer," the Missouri extension director said, "but they should be advised on how to make the most efficient use of what they do buy. We in the extension service feel that this is partly our responsibility and I believe you people in the fertilizer industry can help a lot by giving sound advice to your farmer customers."

A firm believer in the value of the well-organized Missouri soil testing program, Mr. Burch said that the farmer could use information from soil tests to good advantage. Soil test results will point out what fields can be brought to full fertility levels most economically and the farmer could select these fields for his main crops

and spend as little as possible while doing the job.

An interesting note on the effectiveness of soil tests as done in the state was presented by Walter Wilkening, county extension agent in Montgomery County, Mo., and John Falloon, University extension soils specialist. They reported on plant tissue tests made in Wilkening's county during the past growing season.

Such tests measured the concentration of nutrients present in a growing plant and were used to check the reliability of suggested soil treatments based upon soil tests. During the summer, tissue tests were made on 125 corn fields where the soil had previously been treated.

Results from the test proved the reliability of soil testing, showing that where a full treatment of fertilizer was applied according to soil test, only an occasional nutrient deficiency was noted in the plants through the tissue tests.

Going even further to prove that soil testing was reliable, the two men quoted more data from the survey, noting that tissue tests showed additional nutrients were needed where only partial fertilizer treatments had been made. Also, where no treatment was made, all the plants involved in the test showed nutrient deficiencies.

Dr. A. W. Klemme, agronomist for Murchison's Ranch, San Antonio, Texas, and former Missouri extension soils specialist, went into Missouri's agricultural possibilities. He made the statement that an annual gross income of 1½ billion dollars is possible for Missouri farmers—twice the high of ¾ billion dollars reached during wartime years.

"However, the gaining of this goal is in the hands of individual farmers," Dr. Klemme continued. "And, before the goal is reached, the farmers will have to do something about the factors now limiting production in the state."

Limiting factors mentioned by Dr. Klemme included soil fertility deficiencies, use of non-adapted crop varieties, failure to control insects and diseases, lack of operating capital, drouth and excessive moisture. Only if Missouri farmers take these factors into consideration and do something about them can the 1½ billion dollar gross agricultural income be reached, the agronomist noted.

Probably the most interesting statement made by Dr. Klemme—again from the standpoint of his audience—was that if Missouri farmers went half way to the possible goal, the fertilizer industry would be selling 300,000 tons each of nitrogen and phosphoric acid and half that amount of potash in addition to a considerable tonnage of trace elements annually.

Dr. Klemme went into detail explaining how to overcome soil fertility and moisture deficiencies through fertilization and irrigation. In other portions of his speech, the soils specialist described some of the work he has been doing on two large tracts of land in Texas.

Vic Lambeth, representing the university's horticulture department, told those attending the short course that efficient and profitable commercial vegetable production requires a skill in matching the soil's contribution to the crops' demands rarely seen in the more common types of agriculture.

"While the grower looks to the soil fundamentally for guides to fertilization and irrigation practices, he must also be intimately acquainted with

the idiosyncrasies of numerous plant species," he said.

Such differences as exist in root systems, balance between vegetative growth and reproductive functions, nutrient content of crop, length of growing season and sensitiveness to forms of fertilizers used preclude any possibility of using a "standardized" pattern even on specific soil types, Mr. Lambeth said.

Old "rules of thumb," especially common among gardeners, have given way to scientifically controlled guides such as soil tests and determinations of available soil moisture.

This shift in reasoning has completely changed the business of commercial vegetable growing, Mr. Lambeth noted. For example, the great improvement in yields and quality brought about through "controlled soil moisture" has led most vegetable growers to regard irrigation as another essential practice for profitable production. Irrigate to "make a crop, not save it" is now the slogan.

In a discussion on soil fertility and grasses, Marshall Christy, university extension soils specialist, said the capital involved in doing a good job of completely renovating and establishing a top performing permanent pasture represents a large investment in most instances. Even so, thousands of acres have been renovated in Missouri in the last six to eight years and have paid good returns.

However, Mr. Christy said there is bound to be a decline in performance if no maintenance work is done in respect to fertility. Pasture productivity gradually declines since 30 to 40 lb. each of phosphate and potash is removed with each ton of material grazed. And, since good pastures may be producing around two tons or so annually, this means a fairly large amount of plant nutrients is being removed, too.

Unless an effort is made to replace the essential nutrients, the once highly productive pasture declines. When pastures reach this condition, there is just one thing to do—repeat the renovation with another expenditure for corrective treatments, seeding, and the hazards of getting a satisfactory stand established quickly.

According to Mr. Christy, this can be avoided if maintenance soil treatments are provided at yearly intervals. As proof of this statement, he quoted results from seven south Missouri counties where demonstration plots had been set up to determine the value of maintenance treatments against none at all.

A nationally known figure, K. D. Jacob, head of the fertilizer and agricultural lime section of the U.S. Department of Agriculture, also appeared on the program. He presented his information with a set of slides and briefly discussed the progress and trends in use of fertilizers and plant nutrients with respect to kinds and quantities of materials and mixtures, including liquid products, fertilizer-pesticide combinations, granular fertilizers and high-analysis fertilizers.

Others appearing on the two-day program included a farmer, Harold Hill, Sikeston, Mo.; a banker, E. J. Evens, Amsterdam, Mo., and university faculty members Theo Dean, C. M. Woodruff, Melton Brown, E. R. Graham and J. A. Roth.

A dinner meeting was held the evening of Dec. 15 in the Memorial Student Union on the University campus with Henry Lange, president of the Missouri Soil Fertility and Plant Nutrition Council, presiding. Dr. W. A. Albrecht, chairman of the university's soils department, was toastmaster and Dr. Klemme the after-dinner speaker.

FARM INCOME

WILMINGTON — Delaware's net farm income in 1954 totaled \$17 million, according to the U.S. Department of Agriculture.



A. Chad Ogden

SALES MANAGER—New sales manager of the Kansas City branch territory of the Chase Bag Co. is Chad Ogden whose appointment was announced by R. N. Conners, executive vice president. A native of Missouri, Mr. Ogden is a graduate of the University of Kansas. He entered the bag industry in 1932 and for past eight years has been sales manager of the Dallas branch for Chase. In his new position, Mr. Ogden will supervise sales of Chase Bag products in seven states—portions of Missouri, Kansas, Nebraska, Iowa, Oklahoma, Colorado and New Mexico.

Hough Announces Appointment of New Distributors

LIBERTYVILLE, ILL.—The F. G. Hough Co. of Libertyville, Ill., announced the appointment of new distributors and the assignment of additional territory to some of its present distributors. These companies which are authorized and equipped to handle the sales, service and parts business on the complete lines of "Payloader" tractor-shovels and "Payloader" tractors, are as follows: Phillippi Equipment Co. for the state of Minnesota, with headquarters in Minneapolis and branches in Duluth, Hibbing, and Moorhead, Minn.

Rish Equipment Co. now serves entire state of Ohio, with plants in Cleveland, Columbus, Dayton, Toledo, Cincinnati, and Portsmouth.

J. D. Evans Equipment Co. has entire state of South Dakota. Headquarters is in Sioux Falls, with a branch in Rapid City.

Brandeis Machinery & Supply Corp. has added territory in Southern Illinois, which it is serving from a new plant in Mt. Vernon, Ill.

State Equipment Co. has been granted the state of Vermont territory which it is serving out of Montpelier.

Orton Equipment Co. is the new Hough Distributor at Stratford, Conn.

Pennsylvania Farm Show Scheduled Jan. 9-13

HARRISBURG, PA.—Nearly every state and many foreign countries will be represented among the approximately 500 visitors expected at the 40th annual Pennsylvania Farm Show in Harrisburg Jan. 9-13, according to the Farm Show Commission.

Dr. William L. Henning, Pennsylvania secretary of agriculture and commission chairman, reports that the 14 acres of floor space under the roof will be utilized down to the last available square foot. Scores of applicants for the more than four acres of commercial exhibit space had to be turned away. Farm machinery will cover more than half of exhibit hall floor area.

Promotions, Transfers Announced in IMCC Phosphate Minerals

CHICAGO—Dr. E. T. Casler has been promoted to manager of the Florida operations of the Phosphate Minerals Division of International Minerals & Chemical Corp. effective Jan. 1, 1956, according to an announcement by George W. Moyers, vice president in charge of the division.

Dr. Casler replaces Floyd B. Bowen as manager of Florida operations. Mr. Bowen having recently been promoted to production manager for the Phosphate Minerals Division's operations in Florida, Tennessee and Montana. Mr. Bowen's headquarters remain at the division's Florida office at Bartow.

Dr. Casler joined International in 1942 with a broad background of phosphate mining and processing experience. After a year as staff engineer for the Phosphate Division, during which he handled assignments on a manganese project in South Dakota and at International's Tennessee phosphate operations, he was appointed assistant manager of the corporation's Florida Phosphate Department.

In May, 1944, he received the honorary degree of doctor of science from the University of Florida in recognition of his contributions to the progress of phosphate mining in Florida. He was graduated from the University of Florida in 1913.

Other appointments on the Phosphate Minerals Division's Florida staff also announced, becoming effective Jan. 1, were:

W. O. McClintock is being promoted to assistant manager for engineering. H. T. Loehr is being transferred to assistant manager for production. H. E. Uhland is being transferred to the post of chief engineer. F. J. Clawson is promoted to chief metallurgist.

As assistant manager for engineering, Mr. McClintock will be responsible for all engineering activities, including the metallurgical department, the analytical laboratory, maintenance of all plant facilities, and special assignments by the manager. He has been chief engineer since early this year. He joined International in 1944, serving as research engineer and later as supervisor for the Research Division. In 1948 he was made flotation superintendent for the Phosphate Minerals Division. He is a metallurgical engineering graduate of the South Dakota School of Mines.

Mr. Loehr's responsibilities as assistant manager for production will include mine and plant operations, quality control and product recovery, operating costs, production estimates, product inventory control, and special assignments. An electrical engineering graduate of Georgia Institute of Technology, he joined International in 1940. From 1941 to 1945 he served in the U.S. Navy as a Lieutenant Commander.

As chief engineer, Mr. Uhland will report to the assistant manager for engineering and will be responsible for engineering projects, design of buildings and equipment, appraisals and estimates, equipment development and testing, and efficiency studies. After graduating from the University of Maryland in chemical engineering and chemistry he spent five years in the feldspar industry in supervisory capacities. He came to International in 1948.

Mr. Clawson, as chief metallurgist, will report to the assistant manager for engineering and will be responsible for metallurgical control and development, prospecting, operating statistics, process and reagent improvement and testing. He attended the Colorado School of Mines, where he majored in metallurgy. He joined International in 1949 as metallurgist.

New Warehouses and Offices Opened by Olin Mathieson

LITTLE ROCK, ARK. — Olin Mathieson Chemical Corp. has announced the opening of a number of sales offices, warehouses and irrigation assembly plants in the west and south.

A new sales office and warehouse have been established at Omaha, Neb., according to G. A. Wakefield, director of sales of the Western Fertilizer Division.

Manager of the Omaha district, serving the states of Minnesota, Iowa, North and South Dakota, Nebraska, Wyoming and Montana, will be S. Y. Roth, formerly manager of the St. Louis district. He is being succeeded by John H. Brown.

In the Omaha offices, Robert J. Donald of Little Rock will be acting assistant manager, James C. Wallace of Houston will be irrigation sales supervisor, and Eugene Mason of Little Rock will be credit manager.

At St. Louis, Vernon Jameson continues as assistant manager, and Edward Shoemaker as supervisor of irrigation sales. Orlan Cooley has joined the company as district supervisor of pesticides sales. Mr. Cooley formerly was a sales representative for the Niagara Spray Chemical Co.

Olin Mathieson is also establishing three new irrigation assembly plants and pesticide warehouses at Grand Island, Neb.; Hutchinson, Kan., and

Lubbock, Texas, according to Sam Cottrell, director of operations of the Western Fertilizer Division.

Each plant will stock Mathieson aluminum irrigation pipe, fittings, pumps, engines and sprinkler heads and will have facilities for assembling and servicing Mathieson systems, Mr. Cottrell says.

Complete stocks of pesticides also will be carried by the warehouses.

Olin Mathieson is a producer of irrigation equipment, Ammo-Phos high analysis fertilizers and other agricultural chemicals.

Tomato Growers Warned On Disease Control

NEWARK, DEL.—Tomato growers at the Peninsula Horticultural Society's 69th annual meeting in Salisbury, Md., were cautioned to double-check their disease-control programs when they turn to irrigating the crop.

The warning was given by Paul Lloyd, graduate assistant at the University of Delaware. Along with Dr. Donald Crossan, assistant research professor in the College of Agriculture, he has been checking reports from Delaware tomato growers that irrigating their crops had caused an increase in some plant diseases.

Mr. Crossan and Mr. Lloyd, in a series of tests at the University agricultural experiment station this past summer, found that there was more trouble with anthracnose disease, for one, when the tomatoes were irrigated.

J. Ford Wilson To Head Production For Fairfield Chemical

NEW YORK—Appointment of J. Ford Wilson as director of production of the Fairfield Chemical Division of Food Machinery and Chemical Corp. was announced recently by Robert H. F. Dade, manager. The production facilities of the division are located in the Fairfield industrial section of Baltimore.

Mr. Wilson was transferred to his new post from the Niagara Chemical Division of Food Machinery, in Jacksonville, Fla., where he served as plant superintendent. Prior to that he was plant superintendent of Niagara's plant facilities in New Orleans. A graduate in chemical engineering from Mississippi State College, Mr. Wilson is a native of Houston, Miss.

WEEDS OUT YIELDS

DICKINSON, N.D. — Weeds not only cut yields of corn but also reduce the chances for higher yields of small grain planted on the corn land the following year, according to research on corn by the North Dakota Agricultural College Experiment Station at Dickinson.

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SOILS AND FERTILIZERS—Fourth Edition

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Covers in detail: soil chemicals, important soil elements such as nitrogen, phosphorus, calcium; yield prospects of crop plants; moisture control, soil management; mechanical operations; soil conservation; organic matter maintenance. New facts, accurate figures. 66 illustrations, 420 pages \$6.00

SOIL FERTILITY (1955)

C. E. Millar, Professor Emeritus of Soil Science, Michigan State College.

A fundamental treatment of the principles of fertility in the soil, with major emphasis on the plant itself. Relevant aspects of soil chemistry, soil physics, soil microbiology and plant physiology from viewpoint of their influence on plant growth. Each major plant food element and the more important micro-nutrients fully treated with respect to supply in the soil, sources and amounts of additions, losses from the soil, functions in plant growth and plant symptoms of deficiency. Covers all sections, with considerable space to saline soils and soils of southern latitudes \$6.75

CHEMISTRY OF THE SOIL (1955)

Firman E. Bear

Presents a comprehensive picture of the chemical aspects of soils in relation to their development, present constitution and the uses to which they are put. Covers: chemical composition, soil, colloids, organic matter relationships, oxidation-reduction phenomena, acid, alkaline and saline soils, plant nutrition, nutrient fixation, trace element chemistry, root and soil relationships. Scientists engaged in soil research will find useful data directly applicable to their investigations. Food chemists, manufacturers and those manufacturing liming materials, fertilizers, soil conditioners, surfactants, wetting agents, insecticides, fungicides and other agricultural chemicals will gain new ideas for future product research and development. 384 pages \$8.75

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A complete study of soils; physical properties, soil organisms, organic matter, relation of water, control of water, tillage, erosion, acidity and its control by liming, management of alkali soils, nitrogen and its importance to the farmer, production, conservation and utilization of farm manures, production and utilization of green manure crops; fertilizer materials and their effects on soils; crop rotations; fertilization and long-term maintenance of productivity of mineral soils. Published 1941. 424 pages, illustrated \$6.00

SOIL SCIENCE SIMPLIFIED

Helmuth Kohnke

A concise textbook dealing with basic concepts of soils. Much useful information for students in agriculture, farmers, fertilizer salesmen, etc. 68 pages, paper bound \$1.00

IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition

D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority.

An outstanding text dealing with the problems of irrigated regions. In addition to the chapters dealing with irrigation, the salt problem, reclamation of saline and alkali soils, there are chapters on maintaining organic matter in soil, minerals and plant growth, fertilizer elements and fertilizer materials, using fertilizers, soil management for general field crops, for fruit, vegetable and specialty crops \$6.50

THE RESPONSE OF CROPS AND SOILS TO FERTILIZERS AND MANURES (1954)

W. B. Andrews

A new book, with special reference to Anhydrous Ammonia and other sources of nitrogen in liquid form. Deals also with legumes as a source of soil nitrogen, and the uncertainty of green manures; the response of soil to phosphorus, potash and soda; the effect of fertilizers on yield and feeding value of hay and pasture crops. 468 pages, 19 chapters, 87 illustrations \$4.50

CHEMICALS, HUMUS AND THE SOIL

Donald P. Hopkins

The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, peas, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbages, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers \$8.50

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COTTON CONFERENCE

(Continued from page 1)

usually quick build-up to extremely high populations. Other factors known to reduce the effectiveness of most of the chlorinated hydrocarbons in killing boll weevils and which existed in these areas were frequent rains, high humidity and low temperatures.

"A combination of these factors and the known fact that weevils become more difficult to kill as the season progresses no doubt contributed to some of the failures.

"The problem of resistance is causing concern in all phases of applied entomology. The future of chemical control is not dark, however, for there is good evidence that not all insects are biochemically capable of developing resistance to a particular insecticide or group of insecticides.

"The big question is in which insect species will resistance appear next, for as yet there is no means of predicting resistance. The loss of resistance when it has reached a high level apparently will be a long, slow process.

"The following suggestions may help alleviate existing problems or delay the development of new ones. To lessen exposure of the insect population to insecticides, applications should be timed and insecticides distributed so that control can be obtained with the fewest number of applications and the lowest total poundage. Insecticides are available which kill insects through entirely different physiological modes of action. It may be desirable to utilize effective insecticides with different modes of action."

Registration at the conference was about 850. Most of the conference talks were reported in a story beginning on page 1 of the Dec. 19 issue of CROPLIFE. Several which were not included in that report are summarized below.

George D. Jones, entomologist, North Carolina Agricultural Extension Service, Raleigh, N.C., was unable to attend the conference, but his paper on problems and recommendations on cotton insect control in the Southeast was read by Walter Mistic, North Carolina Agricultural Experiment Station.

In the paper it was pointed out that cotton acreage was shifting away from the Southeast states.

Between 1920 and 1955 the boll weevil was serious in North Carolina in 22 of the 35 years, with an average annual loss to cotton of 17%. In 1950 that loss was 50%.

Among the problems of cotton production in the Southeast are small acreages, low yields, unsatisfactory equipment, weather and failure to make applications properly.

Recommendations, as listed in Mr. Jones' paper, included higher yields, more knowledge by growers of the insect situation, better equipment and proper application.

The county agent and his staff must be the sparkplug of the insect control program, it was stated.

Mr. Jones also said in his paper that one problem with equipment is that growers with small acreages won't buy proper machinery. Airplane spraying is not the answer in the Southeast, it was stated.

Mr. Jones concluded his paper by stating that cotton can be produced as efficiently in the Southeast as in any other area.

Dr. H. T. Reynolds, entomologist, California Agricultural Experiment Station, Riverside, Cal., appeared on the problems and recommendations panel with a report on the Far West.

He said that the goal of control programs is to make them work for the economic benefit of the grower.

He said that he believes the best answer is supervised control by trained scouts hired on a perma-

nent basis by growers. Fields should be scouted at least weekly, making possible accurate timing of insecticides.

Use of supervised control also makes possible the tailoring of every recommendation for a specific field, Dr. Reynolds said. He told the conference that he looks for an increase in the use of supervised control.

Dr. H. R. Carns, plant physiologist, and Dr. Grady B. Crowe, agricultural economist, U.S. Department of Agriculture, Delta Branch Experiment Station, Stoneville, Miss., presented a report on a three year defoliation study in the Yazoo, Miss. area.

Joe C. Hardin, cotton producer, Grady, Ark., and chairman of the conference program committee, was general chairman of the conference. He also presided at the Dec. 15 morning session.

Other session chairmen were Dr. Clay Lyle, dean and director of the Division of Agriculture, Mississippi State College, State College, Miss.; Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., Washington, D.C.; and J. D. Prewitt, associate director, Texas Agricultural Extension Service, College Station, Texas.

Two Hercules Powder Co. films were shown during the conference, one on research facilities and the other on low pressure sprayers.

Date Set for Fertilizer Conference February 16-17

CHICAGO—A joint meeting of the fertilizer industry with college and university agronomists will be held at the Edgewater Beach Hotel, Chicago, Feb. 16-17, according to an announcement by Zenas H. Beers, secretary of the Middle West Soil Improvement Committee, Chicago.

Mr. Beers says that the program is shaping up nicely at this time and final announcements concerning the agenda will be made later. The entire fertilizer industry and allied industries are invited to attend, Mr. Beers states.

Reservations for space at the Edgewater Beach should be made without delay, he suggests.



Thomas B. Hooks, Jr.

SALES TRAINING MANAGER.—Thomas B. Hooks, Jr. of Houston has been named manager of sales training for the Western Fertilizer District of Olin Mathieson Chemical Corp. His headquarters will be in Little Rock, Ark. Mr. Hooks joined the company in 1950 and has been a sales supervisor in the Southwestern district office. A graduate of Texas A&M College, he was formerly with the Texas state extension service as an assistant county agent.

FDA Announces Pesticide Tolerances

WASHINGTON — The Food and Drug Administration has announced the establishment of tolerances for several pesticides under the Miller Law.

The orders establishing the tolerances have been signed, but probably will not appear in the Federal Register until after Jan. 1, according to W. B. Rankin, assistant to the commissioner, FDA.

Tolerances for residues of methoxychlor (2,2-bis (p-methoxyphenyl)-1,1,1-trichloroethane) are established as follows:

100 parts per million in or on alfalfa, clover, cowpeas, grass for forage, peanut forage, soybean forage.

14 parts per million in or on carrots (with or without tops) or carrot tops, currants, gooseberries, pean-

3 parts per million in the fat of meat from cattle, sheep or hogs.

2 parts per million in or on the following grains: barley, corn, oats, rice, rye, sorghum grain, wheat.

A tolerance of 1 part per million is established for residues of parathion (O,O-diethyl O-p-nitrophenyl thiophosphate) in or on the following raw agricultural commodities: Alfalfa, barley, clover, corn forage, grass for forage, hops, oats, olives, pea forage, vetch, wheat.

A tolerance of 0.3 part per million is established for residue of chlordane (1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene) in or on sweetpotatoes.

The tolerances for residues of inorganic bromides (calculated as Br) in or on raw agricultural commodities which have been fumigated with methyl bromide are as follows:

5 parts per million in or on apples, pears, quinces.

20 parts per million in or on eggplants, onions, tomatoes.

30 parts per million in or on beets, rutabagas, turnips.

50 parts per million in or on alfalfa hay, barley, beans, green beans, lima beans, snap beans, black-eyed peas, cocoa beans, corn, grain sorghum (milo), oats, rice, rye, wheat.

75 parts per million in or on potatoes, sweetpotatoes.

200 parts per million in or on cottonseed.

FDA also announced that a tolerance of 3 parts per million is established for residues of phygon (dichloro or 2,3-dichloro-1,4-naphthoquinone) in or on each of the following raw agricultural commodities: Celery, tomatoes.

OZARK-MAHONING

(Continued from page 1)

merged Combustion Evaporator will be used in concentrating the phosphoric acid before treatment in the fertilizer plant.

This burner is an underwater gas burner in which the flame actually impinges on the solution and operates submerged in the acid. It is an Ozark-Mahoning invention which has been used successfully for many years in the firm's plant at Monahans, Texas. The Tulsa plant also will be equipped with modern scrubbing devices to prevent dust or fumes.

Singmaster and Breyer, New York, is designing the phosphoric acid plant. Design of the fertilizer plant and construction will be handled by the company's own forces.

Ozark-Mahoning Co. expects to set up its own sales organization to cover the middlewest and southwest and will market its product under its own trade name. C. T. Longaker has joined Ozark-Mahoning as director of sales for the new fertilizer department.

SOHIO CHEMICAL

(Continued from page 5)

pected to assure an adequate supply for the fluctuating agricultural demand produced by varying weather conditions.

The new petrochemical plant consists of five process units, an office headquarters building, a laboratory building, a locker building for the plant employees, a steam plant and an electrical sub-station. The process units are: the ammonia unit, the nitric acid unit, the urea unit, the carbon dioxide (dry ice) unit, and the solutions blending unit.

The basic product of the Sohio plant is anhydrous ammonia. From this material the plant will manufacture urea for use as a fertilizer and fertilizer ingredient; urea-formaldehyde resins for adhesives and plastics and urea for animal feed and various industrial chemical applications.

Nitric acid from the Sohio plant will be used in explosives, metallurgical applications and as a chemical industry raw material. Nitrogen solutions will be used for both dry and liquid fertilizer manufacture and materials to be applied directly to the soil as a nitrogen plant food.

By-product carbon dioxide is used in the manufacture of dry ice, fire extinguishers and in various rubber products.

Ammonium nitrate solutions will be sold primarily to fertilizer manufacturers.

The five major railroads servicing the Lima area permit direct line shipments into most areas of the agricultural midwest. Sohio will supplement this rail delivery service with a fleet of its own truck transport, insuring alternate facilities during critical agricultural production periods. Location of the plant puts it within a radius of 175 miles of the major industrial areas of the nation.

The company points out that its technical service by engineers, chemists and agronomists is available to all Sohio customers. The company's research and development laboratories in Cleveland are conducting constant research for improved methods and applications of its chemical products.

Manufacturing processes of the Lima plant are modern in every respect, the company says. Ammonia is produced by the steam methane process. In the ammonia unit, air, natural gas and catalytic reformer gas are run through a reformer unit to produce nitrogen from the air, hydrogen from gas, carbon monoxide and carbon dioxide. Both the CO and CO₂ are removed and the nitrogen and hydrogen run to a synthesis unit where ammonia is formed. About one third of the ammonia thus produced is sold as such. The remainder is processed further to make nitric acid solutions and urea.

In the nitric acid unit, ammonia is burned to form nitrogen oxide. Water is added, by-products are removed, and nitric acid is produced. About a third of this unit's production is marketed as nitric acid. The remainder is used to make ammonium nitrate solutions.

The urea unit uses the Inventa process which is basically secret in nature. Here ammonia and carbon dioxide, produced in the ammonia unit, are combined to form urea at very high pressure and moderate temperature.

Urea is first derived in the form of a solution. A portion of the water is evaporated and the resulting concentrated solution is charged into the prilling tower and sprayed as droplets from the top. These droplets solidify into small spherical particles which are then coated with a dusting compound to prevent taking on moisture and caking.

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Fields for
Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW



SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

Selling and merchandising seem to get a lot of corridor attention during this convention season. Wherever dealers are present, they are in the middle of the discussions for selling and merchandising is how they make their living.

Interesting indeed are some of the comments made and a few of them, heard recently, follow.

One gent was heard to say: "If the idea could just be gotten across to the men on the firing line that they must make friendly calls, on a regular schedule, then they'd be on the way to solve most of their selling worries. I have yet to see a regular calling system, even if only two days a week, fail to pay well."

Another fellow who made calls on dealers in the central U.S. for several months stated: "I met a few live wires but most of them were sitting with their feet on the desk waiting

for some farmer to come in." This is a rather harsh indictment but it is no doubt true in too many instances.

One dealer stated that he plans to send out a questionnaire to find out what his farmer-customers think of the merchandise and service he has to offer. (This would be an interesting fact for every dealer to know.)

Another dealer suggested that the aggressive seller is one who goes on the farm and helps his customers lower their cost of producing a bushel of corn or pound of tobacco.

A complaint was voiced about the questionable ethics of price cutting which was described as especially vicious if done in one part only of the dealer's area for some reason or other. Price cutting, it was felt, was something which always has a repercussion.

Pencil Pushing

Dealers and farmers have a common problem of keeping up with "pencil pushing" and planning necessary to know where and how their operations are doing business-wise.

On the other hand there is more than just suspicion that businessmen and farmers, too, who don't do enough "pencil pushing" and planning are doing nothing to improve their lot in life or, perhaps are even failing in the enterprises.

An interesting study of farm productivity by Harvard University, the University of Massachusetts and the Massachusetts extension service has brought home to some farmers the fact that their farms are not profitable operations. The study indicates that New England farmers were generally capable of vastly improving their separate economic lots if only they could be shaken from their respective "set" ways.

One conclusion reached was that most farmers don't spend enough time "pencil pushing." A farmer can improve his situation considerably if he will sit down for an hour or so a week and do some serious "pencil pushing." It was stated in the study.

Perhaps there are not many dealers who are getting by with only an hour a week of "pencil pushing" but one thing is certain: If not enough time is devoted to thinking and planning it can mean a lack of real progress for any merchant and possibly failure.

Using Fertilizer Materials More Efficiently Is Theme Of New England Agronomist

EDITOR'S NOTE

This article, by R. A. Struchtemeyer, appeared in the November, 1955 issue of "Better Crops With Plant Food," published by the American Potash Institute, Washington, D.C. Dr. Struchtemeyer is connected with the department of agronomy, Maine Agricultural Experiment Station, Orono, Me.

Within recent years there has been an ever-increasing amount of talk about the growing population in the United States. Many people recently have been popularizing the fifth plate idea. That is to say, authorities are advocating by 1975 a fifth plate for every four now in existence. Some months back the New York Sunday "Times" pointed out that since 1950 our population in these United States has increased 5,672,000 persons. As our population increases, the farmer's role in human survival becomes greater and greater.

Statistics (1) show that every year there are fewer real farmers left to produce the food needed than there were the year before. In the past, the farmer's ability to produce has more than kept pace with the decrease in farmer numbers. How long can this continue?

Scientists, of course, are willing to stake their futures on the possibilities that they can continue to find new horizons of production and, thereby, continue to increase the farmer's ability to produce more food. The new horizons are becoming more difficult to find so that progress in the future may be somewhat slower than it has been in the past.

If the pressure for food becomes great in the years ahead, New England with its many acres of woods stands to be a vital factor or safety valve for food production. Soil surveys show that there are quite a few acres of land in the New England States that have as high a productive capacity as those now being farmed. It is possible that some time in the

Vegetable Growers of Pennsylvania to Meet

UNIVERSITY PARK, PA.—Chemical weed control, irrigation and plant diseases will be among the topics under discussion at the first educational conference of the Pennsylvania Vegetable Growers Assn. Jan. 4-5 at Pennsylvania State University here.

R. F. Fletcher, extension specialist, will review current findings on chemical weed control. A discussion on corn earworms, symphillids and cabbage worms and their control is planned. Dr. R. L. Kirby, extension plant pathologist, will talk on plant diseases, stressing mildew and leaf-spot of cabbage, bacterial wilt of corn and virus diseases of tomatoes.

A review of soil testing results from across Pennsylvania will also be presented, as will a discussion on the Miller Bill and water conservation.

future there may be a second frontier in this area.

Since New England represents an area longer in cultivation than any other area in the United States and at the same time represents an area of very low native fertility, the yields that are being obtained by many farmers in this area are something to be proud of. Potato, corn, grain, and forage yields obtained in this area are as good as, and in some cases better than, those being produced elsewhere. How is this being done? Actually many things enter into the over-all production picture, but certainly the high per-acre rates of fertilization have been instrumental in this achievement.

Realizing that the area must continue to forge ahead and that one way it can do this is by the more efficient utilization of fertilizer, it becomes imperative for one to examine what has happened to our New England soils as a result of our continued application of rather large amounts of fertilizer. Here again a mature agriculture has provided an abundant supply of data on fertilizer usage and the effects fertilizers and cropping have had on the fertility of New England soils.

Again, before examining the data on what has happened to the fertility level of our soils, let's remember that they are naturally low in fertility, high in acidity, generally of illite type clays, commonly sandy in texture, and responsive to fertilization. As a result of these characteristics certain crops have adapted themselves to the area and certain management practices have become established.

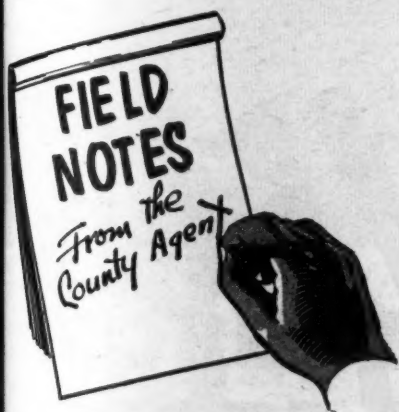
When considering the fertility status of the soil, it is well to remember that it is ever-changing. There are nutrients being removed from the soil by harvesting of crops, leaching of rain water, and erosion. To offset this downward trend in soil fertility, nature provides some new plant nutrients through the weathering of rocks and minerals and through substances carried down by rain. These natural additions when compared to the quantities being lost while the land is being farmed are mere drops in the bucket.

Therefore, it is left to the farmer to balance the account. He can partially replenish the nutrient supply through the utilization of animal manures and green manures, but he must depend very heavily on fertilizer and lime if he is actually going to accomplish his goal.

Let us now examine for just a moment the situation that exists in this area in regard to the removal of plant nutrients from the soil by crops and livestock products. First, the removal by plants has been estimated as indicated in Table 1. The removal by livestock products sold off the farm is also indicated in this table.

From these figures one can see that potash is the material removed from the soil in the greatest amount and that N, P₂O₅, and K₂O were removed in the ratio of 1-0.28-1.16.

(Continued on page 16)



By RAYMOND ROSSON

County Agent, Washington County, Tenn.

"Twas the day before Christmas,
when all through the land
All stores were stirring,
to beat the band.

The trees are all trimmed,
and beneath them lie
Gifts from our loved ones,
even you and I.

The homemakers are busy,
as busy as can be
As visions of turkey,
and cake they can see.

The children are star-eyed,
and happy are they
With anticipation,
of the glorious day.

And out in the barnyard,
arises a clatter
And even the animals,
grow fatter and fatter.


Now Hereford, now Angus,
now Guernsey and Hampshire
On Shorthorn, on Holstein,
on Jersey and Berkshire...

Now dash away, dash away,
dash away quick
To market, to market,
ahead of St. Nick.

For tons of Plant Food,
with N-P and K
Preparing for spring,
so there'll be no delay.

So may we repeat,
and we want this to stick
HAPPY CHRISTMAS TO ALL,
in the words of St. Nick.
(with apologies to C. C. Moore)

Again we tell **3½ million farmers** *Fertilizer* *Grows* *Farm Profits*



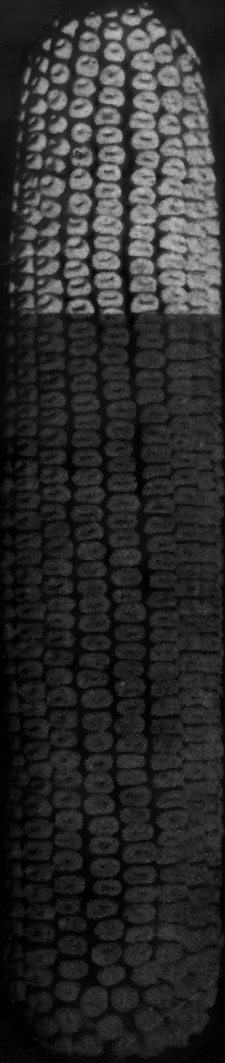
The advertisement on the opposite page is the second in a series in a powerful and continuing campaign directed to the attention of more than 3½ MILLION readers of farm magazines.

Nitrogen Division, Allied Chemical & Dye Corporation, is conducting this campaign to serve the best interests of the farmer, the fertilizer manufacturer, the county agent, the country banker, the experiment station, the extension service and all others interested in a profitable agriculture.

This campaign is designed to be helpful to you in your efforts to serve the farmer. We trust that it meets with your approval and we greatly appreciate any comments or suggestions you may wish to send us.

More ferti
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**50
BUSHELS
PER
ACRE**



PROFIT

**COST
OF
PRODUCTION**



**100
BUSHELS
PER
ACRE**

MORE FERTILIZER MEANS MORE PROFIT PER EAR

More fertilizer per acre means more bushels per acre added to your yield at very low extra cost. This reduces your cost of production per ear or per bushel and increases your net profit.

For example the corn ears pictured above show how fertilizer worked for some typical corn growers on good land. Fixed expenses, such as land-use, management, labor and machinery were the same whether the yield was 50 bushels or 100 bushels per acre.

To increase the yield to 100 bushels, the only extra investment required was MORE FERTILIZER per acre, more seed for closer spacing and extra labor for harvesting the larger yield. Fifty extra bushels per acre were added to the yield at very low extra cost and far greater profit per bushel.

More fertilizer per acre is your best-paying investment. Results vary on different crops and

soils but the basic economic fact prevails: a bushel or a pound of any crop can be produced much more economically when the yield is high than when the yield is low. More fertilizer is the direct route to high yields.

The price of fertilizer has not gone up like the prices of many other things the farmer buys. Returns from thousands of tests show that \$1 invested in fertilizer produces an average return of \$3.75 in extra yields. On many crops the return is much higher.

Fertilizer is your best investment. Fertilizer reduces your cost of production per bushel and increases your net profit. Use more fertilizer this year!

The fertilizer industry serves the farmer. Nitrogen Division serves the fertilizer industry as America's leading supplier of nitrogen for use in mixed fertilizers.

See Your County Agent

Ask your County Agent to recommend the analyses and the amounts of fertilizers best suited to produce big yields of the crops you grow on your soil. His advice to you is based on the latest official recommendations from your Extension Service and Experiment Station.



See Your Banker

Bankers are alert to good investments. They know that fertilizer pays a big return in the short period of a growing season. If you need money to buy more fertilizer, most bankers consider the extra yields produced by fertilizer as an excellent risk.

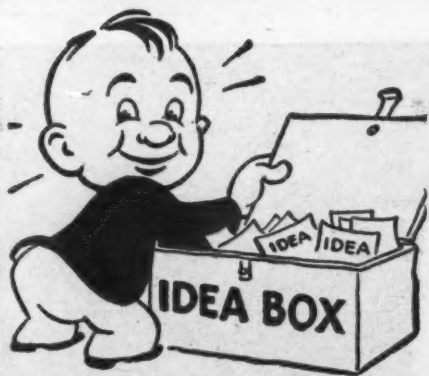
See Your Dealer

Your fertilizer dealer can supply you with a good brand of fertilizer in the amounts and analyses as recommended by your County Agent. Help your dealer to get your fertilizer to you on time by placing your order early and accepting prompt delivery. Use more fertilizer than ever before and have it on hand when you need it. Remember, fertilizer grows farm profits. Use enough to really pay you big!



NITROGEN DIVISION Allied Chemical & Dye Corporation
New York 6, N. Y. • Hopewell, Va. • Ironton, Ohio
Omaha 7, Neb. • Indianapolis 20, Ind. • Columbia 1, S. C.
Atlanta 3, Ga. • Kalamazoo, Mich. • Columbia, Mo.

Fertilizer Grows Farm Profits



What's New...

In Products, Services, Literature

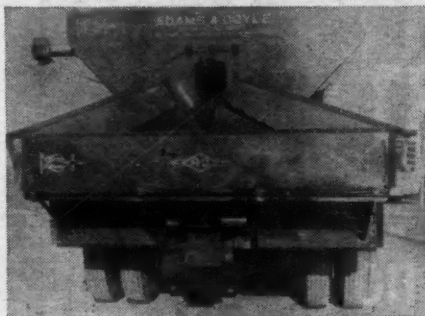
You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address; (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6355—Pesticide Catalog

The York Chemical Co., Inc., has published a catalog of its pesticides and has it available for distribution. The company manufactures the Certox line of pesticides. The products described in the catalog include insect, roach and fly sprays, wettable powders, rodenticides, insecticide dusting powder, roach and ant powder, and pyrethrum insecticide dusting powder. Also the company's line of termite killers and wood preservers is described. Included are shipping and packing information. Secure the catalog by checking No. 6355 on the coupon and mailing it to Croplife.

No. 6354—Fertilizer Spreader

A new line of fertilizer, lime and phosphate spreaders has been announced by Adams & Doyle, Inc. According to the manufacturer the most popular features are: The exclusive precision built gear box with spiral gears; hardened steel shafting with 1½-in. and 1¼-in. bearings; the solid 11-gauge steel sheets used in the sides and ends; the design that allows the



material to be dropped directly into the "eye" of the fan, permitting a more uniform and wider swath to be spread each time through the field. The feed gate can be set to spread uniformly from 100 lb. per acre up to four tons per acre. The spreaders are available in 7-ft., 8-ft., 10-ft. and 12-ft. sizes. Complete information and a two-color brochure are available. Check No. 6354 on the coupon and mail it to Croplife.

No. 5361—Scale Bulletin

A new six-page, two-color bulletin describing a versatile bulk weighing scale for process weighing is offered by Richardson Scale Co. Described is the model E-50 scale which is elec-

trically controlled and pneumatically operated. It is said to be completely automatic in operation. It will weigh nearly all dry, granular, small lumpy, crushed and powdered materials. The bulletin discusses the scale's construction, capacity, accuracy, and process weighing features. It describes such special features as a hopper door flapper, different inlet chutes, recording counter, accurate knife edge weigh beam and optional agitator and subsidiary beam equipment. For more complete details check No. 5361 on the coupon and mail it to this publication.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6352—Bag Packers

The H. L. Stoker Co. has prepared a new catalog entitled "Stoker Bag Packers," which describes its packers for filling multiwall bags and drums. The company's packers, according to the catalog, are designed to handle powdery, granular or pelleted materials including insecticides, chemicals, certain fertilizers and many other materials. Simple attachments make one packer fill valve bags, open mouth bags, drums and barrels, the catalog states. Five models are available, and all packers utilize a screw or auger to feed materials into bags and drums. Predetermined weights are generally held within less than plus or minus 0.5%, depending on the material being packed, the catalog states. Secure the catalog without charge by checking No. 6352 on the coupon and mailing it to Croplife.

No. 6350—Liquid Feeders

The problem of reducing encrusted gypsum in phosphoric acid feeding equipment in the continuous production of triple superphosphate through the use of the trade-named product, the Omega Rotodip liquid feeder is described in a 12-page reprint just issued by the Omega Machine Co., a division of B-I-F Industries, Inc. Contents of the reprint, written by Andrew A. Melnychuk, are titled, "Continuous Processing Equipment for the Fertilizer Industry." All components of the feeder, including the dipper wheel, are designed with straight sides and flat surfaces. Eliminated because of the necessity of a recirculating system with the Roto-

dip liquid feeder, is the need for a float valve which increases the possibility of gypsum crust formations. The company announcement states. The reprint contains four new flow diagrams in addition to technical data and installation photos showing the Liquid Feeders in recently developed continuous processes. Secure the reprint by checking No. 6350 on the coupon and mailing it to Croplife.

No. 6353—Rotary Tillers

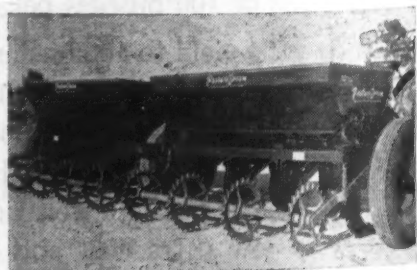
The Midland Co., builder of garden tractors, announces that retail feed and fertilizer dealers are eligible for dealerships on its line of rotary tillers and garden tractors. Coincident with this announcement is the introduction of a new Midland rotary tiller. The tiller takes a 16-in. tillage swath, has special tines of rugged, forged steel of the slicing, non-heeling



type, designed to stay remarkably clean, minimizing wrapping and winding, the company states. It is powered by a Briggs & Stratton 2½ h.p. air-cooled engine, equipped with recoil starter and quiet muffler. The unit is said to be exceptionally well-balanced, providing ease of operation and tilling efficiency usually found only in much more expensive equipment. Controls are within easy reach of the operator. For further information about the equipment and dealerships, circle No. 6353 on the coupon and drop it in the mail.

No. 6349—Planter-Fertilizer Unit

Farmers who have a large acreage in pasture lands can now plant and fertilize these pastures in double-quick time with the new "Twin" Pasture Dream, claims its manufacturer, the Taylor Machine Works. Designed especially for use over large pasture areas, the unit is double the size of the company's standard Pasture Dream. It covers 13 ft. 4 in. each trip over. All other features are exactly the same as those of the standard machine. The company an-



nouncement states that many farmers are now planning to convert row-crop land into pastures and that either model is ideal for planting cover crops on row-crop land without seedbed preparation. To secure more complete details check No. 6349 on the coupon and mail it to Croplife.

No. 6351—Coating

A new folder has been prepared by Alfred Hague & Co., Inc., on its rubber base paint called by the trade name Rubalt 7-C Red Primer. The folder states that the product pro-

Send me information on the items marked:

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| <input type="checkbox"/> No. 5309—Accounts Receivable | <input type="checkbox"/> No. 6352—Bag Packers |
| <input type="checkbox"/> No. 5341—Seed Treater | <input type="checkbox"/> No. 6353—Rotary Tillers |
| <input type="checkbox"/> No. 6343—Tractor-Shovel | <input type="checkbox"/> No. 6354—Fertilizer Spreader |
| <input type="checkbox"/> No. 6349—Planter Unit | <input type="checkbox"/> No. 6355—Pesticide Catalog |
| <input type="checkbox"/> No. 6350—Liquid Feeders | <input type="checkbox"/> No. 5361—Scale Bulletin |
| <input type="checkbox"/> No. 6351—Coating | |

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67,

Reader Service Dept.

Minneapolis 1, Minn.

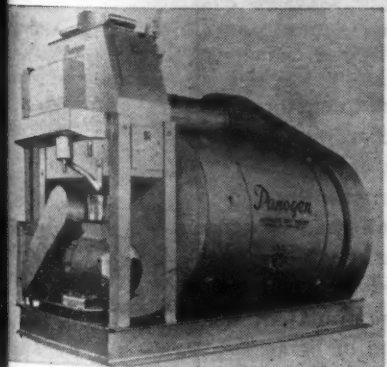
ides "metals, wood, concrete and other surfaces with long lasting protection against moisture, acids, alkalis, electrolysis, hydrolysis, salt water, sunlight, dirt and grease, mineral oils and alcohols." The product dries in one hour, goes over damp surfaces and can be applied by spray or roller, according to the folder. Directions for use are also included in the folder. Secure the folder by checking No. 6351 on the coupon and mailing it to Croplife.

No. 5309—Accounts Receivable

"Simplified accounts receivable for retailers" (SARR) is described in an 8-page folder released by Remington Rand. Based on the company's "simplified unit invoice accounting plan" (SUIAP), "simplified accounts receivable for retailers" uses no accounting machines and requires no highly trained clerks. It is claimed to provide a complete, accurate and fast method of handling accounts receivable. The method uses Remington Rand's Kollect-A-Matic trays, housed in Safe-Ledger equipment for 24-hour protection from fire, and provides an accounts receivable ledger composed of open, unpaid items only. A monthly statement for each customer, and a history of each account. Secure literature on this method by checking No. 5309 on the coupon and mailing it.

No. 5341—Seed Treater

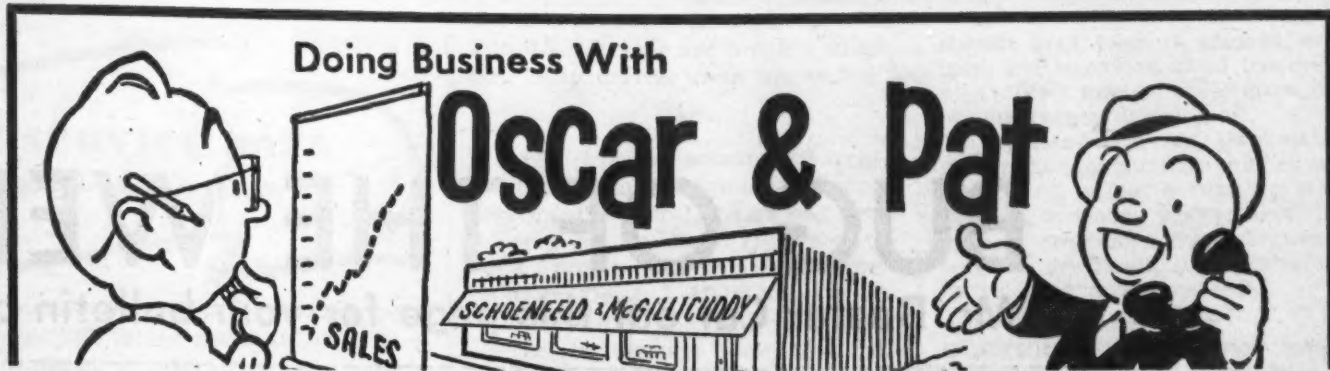
The model KS-5 is a new automatic seed treater for the application of Panogen liquid seed disinfectant, has been announced by Panogen, Inc. The model is designed for liquid seed treatment of wheat, oats, barley, corn, cotton, etc. V-belts have been replaced by a new roller chain drive and speed reduction gear. The only belt used drives a fan which removes dust and fumes. The treater employs a modified "dip" measuring device. The model is rated at 350



bushels per hour capacity. Dimensions are: Height 43½ in., length 31½ in., width 32½ in. Secure more complete details by checking No. 5341 on the coupon and mailing it to Feed-stuffs.

No. 6343—Tractor-Shovel

The third and largest of the new four-wheel-drive tractor-shovels to be added to its "Payloader" line has been announced by the manufacturer, the Frank G. Hough Co. Designated as the model HO, the unit has a capacity of 2 cu. yds. It is similar in styling and outward appearance to the 1 and 1½ cu. yd. models HU and HH which were recently introduced. Features are "pry-out" bucket action; 40° of "breakout" at ground level and new standards of safety and stability. The clutch pedal has been eliminated and all shifts through all speed ranges in both forward and reverse can be made without coming to a stop or slowing down, company officials said. Check No. 6343 on the coupon, clip and mail to secure more information.



Minnie Schoenfeld, the thin, harassed and nervous wife of Oscar Schoenfeld came into the exactly ordered living room and said for the third time, in a plaintive voice, "Oscar, supper is ready." Then she added, "the pig's knuckle will not taste so good when it gets cold."

"Oh, all right," Oscar said petulantly, getting up quickly and walking to the table, a copy of Croplife in his hands. "But one of these days I am going to do something real drastic. Just wait and see. Just wait and see."

"What are you going to do?" Minnie asked worriedly. "Is it—is it something that Pat has done again?"

"What else?" asked Oscar. "Who makes all the trouble around our business? Who has to be watched night and day, so he doesn't spend us out of business? Who doesn't know from day to day how much our bank balance is, like me? That Irishman, that's who."

The fertilizer dealer lifted the copy of Croplife. "One of these days in one of these trade papers, I will find an ad where somebody reliable wants a decent partner, somebody steady, somebody with common sense. Then I will sell out to Pat, and I will have peace."

Minnie looked a little terrified as she dished out mashed potato for her sputtering spouse, a habit Old Country women handed on to their dutiful daughters. The man of the family was to be waited on hand and foot, for he was the Lord and the Master. Oscar certainly was no lord, but he was a master, and a stern one.

"But—but maybe that new partner, Oscar, would be a man just like you," Minnie ventured. "Maybe he wouldn't want to go out and meet people and sell like Pat does. Then two of you would be in the office every day watching expenses. Would—would that work?"

For a moment, Oscar's jaw sagged. Apparently he hadn't thought of that possibility. "W—well, I would be careful to get a partner who would be level-headed like me, and who could sell like Pat," he said, attacking his pig's knuckle with gusto. "That Irishman makes me sick."

Minnie remained quiet.

Oscar chewed on his meat, then pointed a finger at Minnie. "Know what he's done now? He's been using lights nights for three evenings now—him and his wife. When I complained today he said they are working on a display window or two. A secret. Tonight they are going to unveil the windows—about midnight, he said. And when I ask him what it is, he shakes his head. Ach, I'm a partner, and that's all I get, a shake of the head."

"Well, maybe it will be a good display," Minnie said consolingly, "and sell some fertilizer."

"Good, nothing," snapped Oscar. "Nothing that Pat does is good because all of it costs money. I am in business to make money, and not spend it."

Wisely Minnie went into the kitchen to get the coffee. Having no one to

talk to for the moment, Oscar lapsed into silence, eating rapidly.

After he had finished his meal, he got up and began walking back and forth. "I'm going to fix him," he said. "I will snooze on the davenport with my clothes on. I will set the alarm clock for 12 o'clock and then go down and see those windows after Pat and Nora have gone home. I'll just bet they'll leave the window lights on. I can at least turn off the lights and save some money that way."

"But you'll get to bed so late," Minnie protested. "You are always in bed by 10 o'clock."

"I said I would sleep on the davenport," Oscar said sternly. "For one night I can stand it."

And so it was. Oscar slept on the davenport, set the alarm, but forgot to pull out the button. So the alarm never went off and when Minnie got up at six in the morning, Oscar was still snoring on the davenport.

She woke him, and he got so angry he could hardly talk. He strode into the bathroom, blaming everybody in the world for being against him and he got Minnie so nervous she forgot to put salt in the oatmeal, burned the bacon and only put one tablespoon of coffee into a three cup percolator.

"I must be sick," growled Oscar. "This breakfast tastes terrible."

He got up from the table, put on his cap and stormcoat and strode out into the cold. He got to the office before seven and took a look at the two display windows.

For a long time he stood looking at them. One window showed a king sitting on a throne. He was called King Fertilizer, and signs all around him, told how he returned farmers \$3 to \$6 per acre for every dollar they spent on him.

It was easy to tell that Nora McGillicuddy had made a king's red cloak out of some pieces of red velvet, that the golden crown was gilded paper, and that the kingly form was an old model form. But it was a beautiful window display, and Oscar had to admit it. And it had a sales message, too.

"Nuts!" cried Oscar to himself. "The world has gone crazy. All the foolish things you have to do to sell today, to get the attention of people. It isn't fair. It isn't fair. It isn't right."

The other window also had a king theme. This king was dressed in purple robes, and he had a silver crown. His name, the sign said, was "King Entomology" and the spotlight playing yellow light on him, showed he was a handsome fellow. Here again Nora McGillicuddy's work was evident in the clothes and the decorations. In the display were many packages of pesticides and sprayers.

One sign said: "King Entomology has killed and controlled many insects. Without him, there would be no pea crop in Idaho, for the weevils would get it. The codling moth would eliminate the apple crop in vast areas of the country. There would be only a small fruit industry in Florida, etc. King Entomology and his laboratory workers stand between

man and starvation. The farmer can buy and use the king's products for a small amount of money. This king works for you, Mr. Farmer. Let us explain how."

Oscar looked no more. He opened the door to the office, went in, enjoyed the pent-up heat of the room while he hung up coat and hat.

Once more he paced up and down the office. Then he pointed to the window displays angrily. "He can do that and I can't!" he cried. Then his eyes fell on his neat desk, with its sharpened pencils, its retrieved paper clips and rubber bands, its list of suppliers and the discounts they allowed.

His face lighted for an instant and he picked up a pencil lovingly and looked over his desk again. His shoulders came up and he said proudly, "And I can do office work and cut expenses—and he can't!" A strange peace settled over his soul as he sat down at his desk and began to figure discounts.

Meetings to Note Second Century of Horticultural Progress

ROCHESTER, N.Y.—Three association meetings featuring noted speakers will comprise the Second Century of Horticultural Progress program to be held here Jan. 17-20 at the Rochester War Memorial.

Those who are scheduled to speak include U.S. Secretary of Agriculture Ezra Taft Benson, Canada Minister of Agriculture James Gardiner, Sen. George Aiken of Vermont, Sen. Harry F. Byrd of Virginia, New York Commissioner of Agriculture and Markets Daniel J. Carey and Wheeler McMillen, editor of Farm Journal.

The Western New York Apple Growers Assn. will hold its annual meeting on Jan. 17. Morning speaker will be James Klahr, Hood River, Ore. Speakers at the afternoon session will be Comm. Carey and Hall Clothier, a founder of the National Grape Cooperative. Secretary Benson will deliver his address in the evening.

Meeting for the 124th time on Jan. 18 will be the New York State Agricultural Society. The subject under discussion will be "Weather and What To Do About It." Speakers will be Frank App, Furman Baer, Mrs. Frank Gannett, Dr. M. Brady and Dr. Thomas Malone. Sen. Aiken will speak in the evening at the Annual Farm Products Dinner. He will also make Century Farm awards.

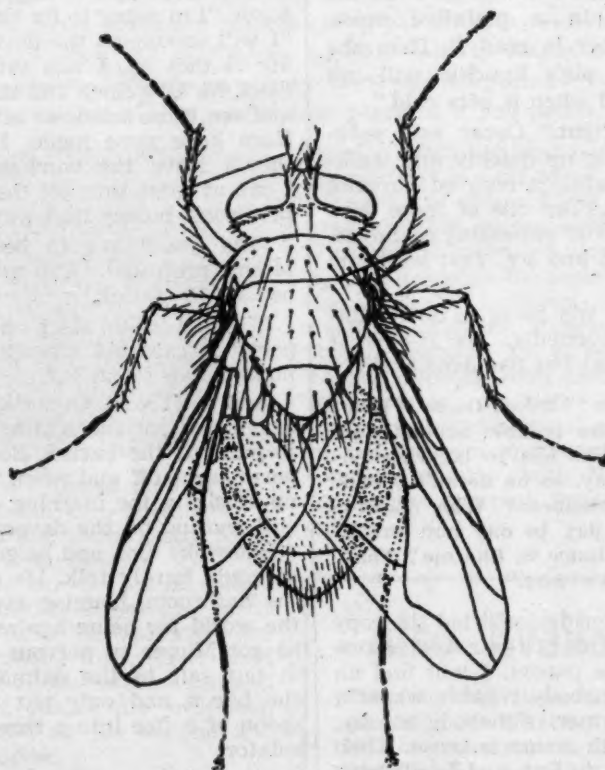
The annual meeting of the American Pomological Society will be held on Jan. 19. Morning speakers will be Dr. Harold Tukey, head of department of horticulture, University of Michigan, East Lansing, and Dr. John J. Magness, U.S. Department of Agriculture Experiment Station, Beltsville, Md. Arrangements are being made to add other speakers at the morning session.

Mr. McMillen will speak at the afternoon session. Banquet speaker in the evening will be Sen. Byrd.

Principal speaker during the final session on Jan. 20 will be Canada Minister of Agriculture Gardiner.

BUG OF THE WEEK

Mr. Dealer Cut out this page for your bulletin board



Blow Fly

How to Identify

Blow flies, often called green bottle flies and blue bottle flies, are of many kinds. The "green bottle" fly is almost twice the size of the common housefly, and is a bluish-green color. Reflections of light give it a bronze appearance. The black blow fly is dark greenish color all over and is larger.

Habits of Blow Flies

Life cycles of blow flies are similar to that of the house fly. They breed mainly in the carcasses of dead animals and in meat in garbage. Although they are seldom so numerous as houseflies, they carry many of the same disease-producing organisms. The larvae of blow flies also develop in wounds or natural openings of the body. Some species, true parasites, develop in the tissues of living animals. The flies spend the winter in the larval or pupal stage in soil or in manure. After appearance in the early spring, the pests continue breeding throughout the summer unless this activity is checked by dry weather. A generation is completed in about 3 weeks, from egg to egg.

Damage Done by Blow Flies

These pests cause considerable losses to cattle, horses, hogs, sheep and goats. According to USDA figures, blow flies cause an estimated annual loss to these animals of more than \$15 million. Chickens, too, can be affected by the fly, though indirectly. At times, fowl become ill and die from ingesting blow fly maggots that have developed in contaminated meat. The blow fly is also suspected of being a carrier of a number of human disease organisms.

Control of Blow Fly

An obvious means of control of these flies lies in sanitation, or removal of situations conducive to egg-laying and protection from cold weather. A number of insecticidal chemicals are effective in control. DDT, lindane, methoxychlor, chlordane, toxaphene and dieldrin have all proved their effectiveness under different conditions. Fly resistance to some of these toxicants is a real problem, but by alternating use of different insecticides, much of this handicap may be averted.

Drawing of blow fly furnished Croplife through courtesy of U.S. Department of Agriculture.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.



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FARM SERVICE DATA

Extension Station Reports

Despite the weather disaster that hit their 1955 crop, Delaware tomato growers are streamlining their operations to hold their advantage in nearby big-city eastern markets, say William E. McDaniel, University of Delaware agricultural economist and Robert F. Stevens of the horticultural department there.

Cost-wise, Delaware growers just a few years ago were fighting a losing battle with California, the Midwest and New York, the two University of Delaware specialists point out. Yields per acre were lower. And, costs per ton were higher because so much of the processing crop was grown in relatively small plantings, using family hand-labor.

But in the past 4 or 5 years, Delaware growers have moved fast to meet this competition by upping the acreage grown per farm and by replacing hand labor with large-scale machinery that makes it possible to cut per-ton costs. Also, say the University of Delaware men, growers have been doing a better job than ever before on spraying, picking and fertilizing.

McDaniel and Stevens point out that many of the men who formerly grew 1, 2 or 3 acres of tomatoes have decided either to expand or else get out of the tomato business. Some of the commercial operators now handle anywhere from 20 to 60 acres apiece, they say. This enables them to buy such items as \$2,000 sprayers, transplanters, special cultivating tractors and other equipment needed to cut their costs of production.

Proof that Delaware growers are doing a good job of management is the fact that their per-acre yields—with the exception of the hurricane-damaged crop of this year—have gone up about 40% in the past 10 years, say the University of Delaware specialists. The number of acres now qualifying in an ordinary year for the "10-ton per acre" club has grown to one fourth of the acreage of tomatoes grown in the state. Since it takes approximately 8-ton yields just to meet expenses these days, many growers find that it will pay them to use the fertilizer and other methods necessary to shoot for 15- or 20-ton yields, the university men say.

★

Alfalfa, grown in combination with grasses, has proved to be an ideal pasture legume in experiments at Pennsylvania State University.

In commenting on the Pennsylvania work, Win Way, Vermont extension agronomist, notes that alfalfa withstands pasture traffic well, gives better seasonal distribution of grazing, and provides a good supply of high quality feed in the mixture. Its deep root system makes it resistant to drouth, and it quickly resumes growth after cutting or grazing.

Fenwick Estey of Bristol, Vt., this year's Green Pasture Winner in Addison County, has known this for sometime. His herd of 33 Holstein milkers and 27 head of young stock has been obtaining all of their roughage from an alfalfa-brome grass mixture on 70 acres atop Bristol Mountain.

A well-planned rotational system of grazing in two-acre plots provides

pasture throughout the grazing season. The forage not used for pasture is put up as grass silage and chopped, mow-cured hay.

Sixty-five tons of lime in the last two years and 600 lb. of 0-15-30 help hold the stands for five or more years. The fertilizer is applied in the fall and again after the first and second cuts. Yields of more than four tons

per acre and a grain-milk ratio of 1 to 6.5 last year are benefits which Mr. Estey derives from his system.

★

A report on protectant seed treatments for vegetable processing crops covering the past 11 years has been released by the New York Experiment Station at Geneva. It was prepared by Dr. J. J. Natti and Dr. W. T. Schroeder.

"The experiments were designed, chiefly to keep pace with newly introduced and supposedly more effective fungicides and to compare them with older and more established materials," say the station scientists.

The study has demonstrated the desirability of protecting from decay seeds of dry beans, lima beans, snap

beans, beets, carrots, crucifers, cucurbits, peas, peppers, spinach, sweet corn and tomatoes. Seed treatments also protect some of these crops from pre-emergence damping-off.

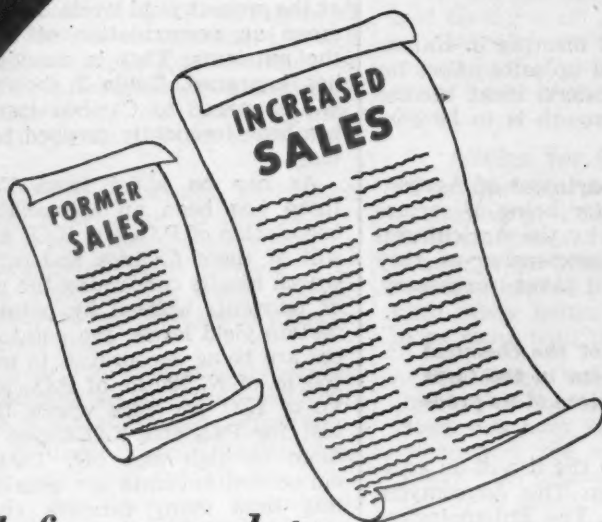
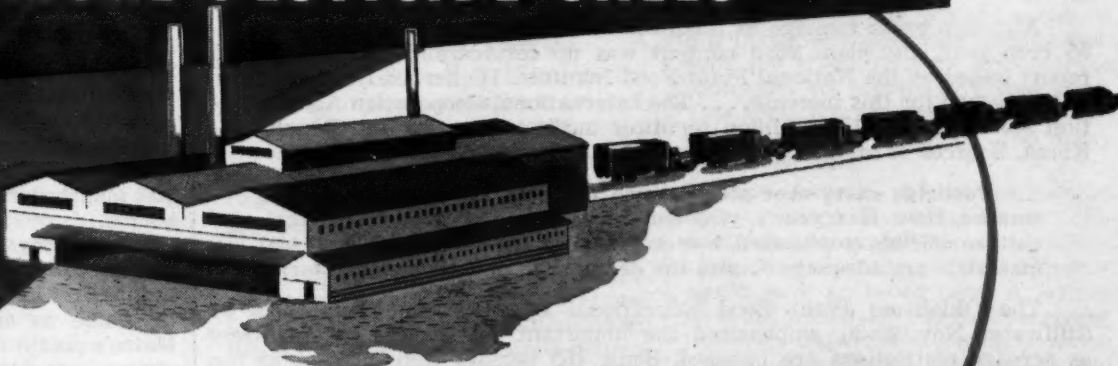
Fungicide-insecticide combinations used either as dusts or slurries were also tested, primarily from the standpoint of fungicide performance. This type of treatment was effective on seeds of dry beans, lima beans, snap beans, peas and sweet corn.

HORTICULTURAL GROUP MEETS

SALISBURY, MD.—The 69th annual meeting of the Delmarva Peninsula Horticultural Society was held Dec. 13-14 here. Personnel from the University of Delaware, Newark, reported outstanding yields of some of the new vegetable varieties which have been under test at the station.

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What's Been Happening?

This column, a review of news reported in CROPLIFE in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Weed control, insect control, defoliation and fertilization were named as necessary practices to achieve lower unit-of-production costs at the first annual Beltwide Cotton Production Conference held at Memphis, Tenn. Dec. 15-16. About 1000 persons were in attendance.

California Spray-Chemical Corp. named Agricultural Ammonia Service, Inc., as sole authorized distributor of Calspray's products, Ortho NH, in designated portions of California. . . . A British authority on the nitrogen trade, Aitkman (London) Ltd., predicted a considerable surplus of nitrogen throughout the world in 1956. Much of the over-supply, it says, will be in the U.S.

The National Agricultural Chemicals Assn., Washington, D.C., said in a year-end statement, that production and sales activity in the agricultural chemical industry picked up in 1955, but due to intense competition within the trade, profits were not as great as such a volume might indicate. Prospects for the 1956 season appear to be good, also, the NAC said.

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., announced \$900,000 in grants to colleges and universities as an aid to education. Science courses will receive a substantial portion of the gift, it was stated. . . . Spencer Chemical Co. announced that it will erect a new research center on a suburban site near Kansas City. It is expected to be completed sometime in the spring of 1957.

American Cyanamid Co. announced a new systemic insecticide, Thimet, which the makers stated has been successful in the control of insects in cotton fields.

Although gross tonnage of fertilizer materials declined during the 1954-55 crop year, the plant food content was up considerably, according to a report issued by the National Plant Food Institute. Higher analyses are given as the reason for this increase. . . . The International Cooperation Administration announced a \$19½ million fertilizer authorization for the Republic of Korea. Sources of material will be world-wide.

Pesticide carry-over stocks were reported by USDA to be 9% smaller than last year's year-end inventory. Department of Agriculture officials emphasized, however, that over-all stocks of pesticidal materials are adequate despite the decrease in manufacturers' stocks.

The Oklahoma Plant Food Educational Society's conference, held at Stillwater Nov. 29-30, emphasized the important role played by fertilizers as acreage restrictions are imposed. Some 165 persons were present at the meeting. . . . U.S. Industrial Chemicals Co. announced that it will build a new plant at Tuscola, Ill., to make 75% phosphoric acid.

The Agricultural Ammonia Institute held its annual meeting in Kansas City Dec. 5-7, with the emphasis being placed on stepped up sales effort for the coming year. The industry, and particularly the dealers, must become more aggressive in selling the farmer, if satisfactory growth is to be continued, it was pointed out.

In its "Farm Cost Situation Report," the U. S. Department of Agriculture lauded both the fertilizer and pesticide industries for being of service to agriculture in keeping prices down. A chart prepared by the Agricultural Research Service showed fertilizers to be almost as inexpensive as they were in 1947-49, as compared to tremendous advances in taxes, machinery, labor, etc.

As to pesticides, the report said that this part of the chemical industry has been steadily contributing to improvement in the farm cost conditions through substantial reduction in the prices of its products since 1951.

The Food and Drug Administration gave approval to the use of an antibiotic, "Acronize Chlortetracycline" as an economic poison. This Aureomycin product is manufactured by American Cyanamid Co. . . . The Entomological Society of America, in its annual meeting at Cincinnati, Ohio, named as president, Dr. B. A. Porter, USDA, to succeed Dr. George C. Decker, Illinois Natural History Survey, Urbana, Ill.

The 8th Western Canada Weed Control Conference, held at Winnipeg, Man., in November, brought out reports that 14 million acres in western Canada had been treated with herbicides, mostly 2,4-D, during the past season. This represented an outlay of nearly \$10 million. Canadian farmers are getting the idea of weed control, according to H. E. Wood, chairman of the Weeds Commission, Manitoba Department of Agriculture.

The Manufacturing Chemists' Assn. in its recent meeting in New York, paid considerable attention to the problems of merchandising chemical products, as well as discussing the technical side of production. . . . The Eastern Branch of the Entomological Society of America, in its recent meeting at Baltimore, Md., elected F. W. Poos, editor of the Journal of Economic Entomology, Washington, D.C., as chairman for 1956.

Use of granular DDT was recommended by USDA for control of European Corn Borer for the 1956 season. This recommendation followed extensive tests with different formulations, at the Ankeny (Iowa) corn borer research center.

The New Jersey conference for pesticide dealers, held at New Brunswick on Nov. 16, presented information on control of insects and plant diseases, with representatives of the New Jersey state agricultural experiment station and Rutgers taking part in the discussions. . . . CROPLIFE announced that it has been accepted for membership in Business Publications Audit of Circulation, Inc., and that BPA audit reports on the newspaper's circulation are now available.

USING FERTILIZER EFFICIENTLY

(Continued from page 9)

Some of the secondary mineral elements were utilized to as great an extent as P₂O₅. The crop removal figures plus the removal through livestock products give some idea of the job that needs to be done annually, and this isn't the whole job. Nutrients are also lost in this area through leaching and erosion.

Since New England soils are not fertile to start with, fertilizer usage has been prominent in the agricultural areas for about a century. As an example, the fertilizer tonnage used in Maine has developed from a very small tonnage in 1850 to 211,485 tons for the year ending June 30, 1953. Figures for the New England States show an increase from 93,000 tons of commercial fertilizer in 1890 to 485,754 tons in 1952.

This long-time usage of relatively large amounts of fertilizer along with other management practices has meant that some fertilizer materials are being accumulated in some soils. A summary of all the removal and addition figures shows that the replacement on a percentage basis has been approximately 155% for N, 255% for P₂O₅, 63% for K₂O, 47% for CaO, 34% for MgO, and 87% for SO₃. Thus it appears that while the fertility status of the plowable land as a whole in New England is improving in the case of some nutrients, others, namely potassium, calcium, and magnesium, still continue to fall behind.

Where does all of this lead us in regard to fertilizer usage in New England? Let us take the situation in Maine as an example. Many of Maine's potato farmers have been applying more fertilizer to their potato fields than they could possibly utilize at the present yield levels. This should mean an accumulation of some of the nutrients. That is exactly what has happened. Table 2 shows what has happened to Caribou loam that has been frequently cropped to potatoes.

As can be noted from Table 2 there has been an appreciable accumulation of P₂O₅ and K₂O. As a result of these findings and other research results concerning the amount of nutrients utilized by potatoes at certain yield levels, the potato farmers are being encouraged to use 120-150 lb. of N, 180 lb. of P₂O₅, and 180 lb. of K₂O per acre where the soil test for P₂O₅ and K₂O shows a medium to high test (4). These recommended amounts are considerably less than many farmers are now using. Therefore, it might appear that the use of less fertilizer is being advocated in Maine.

The idea of using less fertilizer in Maine or any other New England State is not what is desired, but the thing that needs to be done is to see that the fertilizer is put on the soils and the crops where it will do the most good. All the crops in Maine, with the exception of potatoes and possibly vegetables, could stand considerably more fertilizer than they are now receiving. The chance for greatest returns on the fertilizer dollar in Maine and most of New England is on forage crops.

Having considered some of the general aspects of this whole problem, how can the fertility situation on individual farms be improved? First of all, I would like to point out that there is a lot of room for improving the soil-testing program. Personally, I would like to see the time come when every pound of fertilizer is applied on the basis of a soil test. This

situation becomes a necessity if prescription writing for specific crops to succeed. Prescription writing being carried out very successfully in other areas of the U.S. Prescriptions are now actually being written for 100- or 125-bushel corn crops with good results.

Along with soil testing and fertilization goes the matter of liming. Actually, the fertilizer people have a big stake in the use of lime if they are interested in the most efficient use of the fertilizer they sell. To many fertilizer people fail to give lime its full credit in crop production and rather look at it simply as a competitor for the farmer's dollar. This is certainly a shortsighted attitude.

Regardless of what the attitude may be, the lime picture is a very alarming one. In Maine the use of lime hit a peak in 1946 when 102,000 tons were used. The figure for 1954 stands at roughly 55,000 tons and the 1954 figure shows a further drop.

These figures are particularly alarming when one realizes that farmers in Maine should be using at least 200,000 tons of lime a year. This situation is not restricted to Maine but holds for all the New England States. Everyone connected with agriculture should help in reversing this trend away from the use of lime.

Last but not least, more efficient fertilizer usage will be possible when fertilizer is applied to the soils on the basis of soil types. Much of the New England area has been covered by soil surveys, but very little fundamental information on these soils has been gathered. However, we are rapidly becoming aware of soil type differences in regard to response to fertilization. Many people feel that it is impossible to reach maximum efficiency in fertilizer usage until all of the soil resources have been classified and fertilizer response data on them collected.

Table 1—Nutrient Removal by Crops and Livestock for 1948 Expressed in Tons (3)

	Crops	Livestock	Total
N	108,629	17,889	126,518
P ₂ O ₅	30,607	7,595	38,202
K ₂ O	126,413	3,348	129,761
CaO	55,405	12,397	67,802
MgO	24,348	606	24,954
SO ₃	28,514	2,371	30,885

Table 2—Composition of Caribou Loam (2)

	Virgin soil	Cultivated soil
Readily soluble P ₂ O ₅	44 lb./A	192 lb./A
Exchangeable K ₂ O	76 lb./A	398 lb./A
Organic matter	5.70%	5.36%
pH	5.09	5.21

Literature Cited

1. 1950—U.S. Census of Agriculture, U.S. Department of Commerce.
2. Struchtemeyer, R. A., Cunningham, C. E., and Carpenter, P. N.—Utilization of residual fertility by potatoes; Soil Sci. Soc. Amer. Proc., 19 (1955).
3. Swanson, C. L. W., et al.—The changing fertility of New England soils; Agricultural Information Bulletin No. 133; U.S. Department of Agriculture.
4. Terman, G. L., and Hawkins, A., 1947—Fertilizing potatoes economically in Aroostook County, Maine; Better Crops With Plant Food, October.

Tomato Champ Produces Yield of 18 Tons

ATLANTIC CITY—In spite of poor growing conditions last summer, Joseph G. Hancock produced 18.1 tons an acre of tomatoes on his farm near Bridgeton and has been acclaimed New Jersey's 1955 tomato growing champion.

Mr. Hancock was awarded \$100 savings bond by Leon April, president of the New Jersey Cannery Assn., on behalf of the New Jersey Ten-Ton Tomato Club. Awards to top tomato growers were made during a special "Tomato Day" of the New Jersey State Horticultural Society. The champion accomplished his record on 25.08 acres of land which yielded 453.82 tons of ungraded tomatoes.

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CLEVELAND, 21, Middletown named as \$500 in the Contest, sponsored by Grange and substitute. Ann was made in the ceremony of the Convention's Cleveland.

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Vermont Farmer Stresses Balanced Soil In Winning NPFI-Grange Essay Contest

CLEVELAND — Byron E. Moyer, 21, Middletown Springs, Vt., has been named as the national winner of \$500 in the 1955 Conservation Essay Contest, sponsored by the National Grange and National Plant Food Institute. Announcement of the award was made in a special youth recognition ceremony at the National Grange Convention's 89th annual session in Cleveland.

Mr. Moyer's essay was judged the best of about 20,000 essays written by boys and girls in 48 states, Hawaii and Puerto Rico. Essays in this contest were limited to 800 words on the subject of "Gaining Ground with Fertility."

Second award of \$250 went to Charles M. Rioch, 17, Glenwood, N.J. Third place award of \$200 went to Malcolm Niles, 16, Loleta, Cal.

Special national awards of \$100 each went to Miss Donna Lee Anderson, 16, 509 West Lincoln, Blair, Neb.; Miss Frances Woodward, 17, Route 2, Box 320, Aiken, S.C., and Gerald Copeland, 16, Route 1, Horton, Ala.

While none of the winners knew his exact placing in advance, all were present to receive their awards. Presentation of the awards was made by Louis H. Wilson, director of information, National Plant Food Institute, Washington, D.C., and Edward F. Holter, lecturer of the National Grange, Middletown, Md.

Mr. Moyer is married and is an active farmer, living on the family farm owned at one time by his grandfather. The Moyers have over 50 head of Holstein-Friesian cattle on their 350-acre farm. Mr. Moyer is an officer and member of the Youth Committee of Middletown Springs Grange, Rutland County. He has completed one year in agriculture at the University of Vermont.

The essay of the national winner traced the story of conservation on his own family farm. He started with his grandfather's generation, explaining that "farming in Grandfather's day was hectic and uncertain as he had little scientific knowledge."

The winner then went on to say, "When Dad took over the farm, we had entered a whole new era of scientific farming, and the old farm took on a new look. Conservation farming became the order of the day. Grandfather could plow the straightest furrow, but now contour plowing has become a familiar sight."

Stressing the importance of "a balanced soil" the young Vermont farmer recommended soil testing as the only way to determine what plant foods are needed. He said, "Manure is one of the best sources of organic matter and humus, a great soil builder and developer. But to give the soil balance, other plant foods in the form of nitrogen, potash, phosphorus, minerals and lime are needed. It is a well-known fact that humans and animals get their nourishment and strength from their food, which in turn gets its food from the soil. If the soil is deficient in vital plant foods and minerals, the crop would be poor in quality, yet it could be sufficient in quantity and malnutrition would result."

Mr. Moyer summarized farm management plans for the future by stressing his own personal responsibility for the continued fertility of the soil of this nation. In closing his essay he said, "Soon the old farm will be mine. I shall accept this challenge gladly, for I know that if I take good

care of the farm, the farm will take good care of me."

Second award winner, Charles M. Rioch, is a junior in high school. He lives on a 124-acre fruit and dairy farm. In a six-year membership in 4-H club work, Charles has completed projects in home gardening, dairying and mechanics. He personally owns three registered Holsteins and looks forward to an agricultural future, possibly a partnership with his father in the fruit and dairy business. Charles' essay explained the importance of "underground forces" and good conservation practices, including use of commercial fertilizers, planned crop rotations and the control of wind and water erosion in building fertility throughout the world.

Third award winner, Malcolm Niles, is a senior in high school and lives on a 749-acre ranch. He owns a full interest in 53 registered Guernseys, 9 registered Herefords and 25 grade Herefords. In addition to this, he owns a half-interest in the home ranch. He is a vo-ag student and FFA member, and has a nine year record as a member of the 4-H club. Malcolm plans to major in agriculture at the University of California. His essay dealt with his experiences in increasing the fertility of a hayfield on a mountain top.

Donna Lee Anderson, winner of the fourth award, is a junior in high school. She is a home economics student and member of the Future Homemakers of America, in addition to holding a seven year 4-H membership record. She is also youth representative on the official board of her church (Methodist). Her father is a soil conservation technician.

Fifth award winner, Gerald W. Copeland, who is a junior in high school, lives on a 120-acre general farm. He is a vo-ag student and a member of the Future Farmers of America. After graduation from high school, he plans to major in agriculture at Alabama Polytechnic Institute.

Frances A. Woodward, sixth place winner, is a senior in high school. She lives on a 385-acre general farm. She is lady assistant steward of Shaws Fork Grange, Aiken County, S.C. Frances has been a 4-H member for seven years.

Each of the six national winners also received an all-expense paid trip to the National Grange Convention.

The National Contest Judging Committee was composed of Ezra Taft Benson, secretary of agriculture, chairman; Don A. Williams, administrator, Soil Conservation Service, U.S. Department of Agriculture; Miss Lois M. Clark, assistant director, Division of Rural Service, National Educational Assn.; Frederick Hovde, president, Association of Land-Grant Colleges and Universities; Dr. W. T. Spanton, chief, Agricultural Education Branch, U.S. Office of Education; Miss Jennie Williams, past president, National Home Demonstration Council, and C. M. Ferguson, administrator, Federal Extension Service, U.S. Department of Agriculture.

The secretary of agriculture sent his congratulations to the contest winners.

ANHYDROUS STUDIES

ORONO, MAINE—The agronomy department of the Maine Agricultural Experiment Station has been working with anhydrous ammonia on a limited scale for three years. Department researchers report that early experiments indicate that the water free ammonia "has definite possibilities in Maine agriculture."

New England News Notes

By GUY LIVINGSTON
Croplife Special Correspondent

Flood control, flood insurance, and new techniques in agricultural buildings are the paramount subjects now being studied in the six-state New England region. While coastal storms have frequented the shores of New England irregularly for over 300 years, nothing like the hurricanes and floods of the past two years have ever been experienced before.

In 1954, New England farmers were battered by three hurricanes, Carol, Edna and Hazel. In 1955, the back lash of Hurricane Diane swept the three southern states of Massachusetts, Rhode Island and Connecticut with disastrous floods and was followed by a wild deluge which reflooded the same areas.

Flood damage was not covered by insurance and steps are now being taken by the New England governors to institute flood control measures. In all upcoming endeavors, farmers are now taking flood and hurricane factors into consideration.

Flood Control Solution

Brig. Gen. Robert J. Fleming, Jr., speaking to the Northeastern section of the American Society of Civil Engineers at the M. I. T. Faculty Club in Cambridge, Mass., said the solution to New England's flood control problems "is economic—you cannot control floods with blueprints" or by indulging in "unlimited debate." He said Congress is expected to appropriate \$1,851,000 in supplementary funds for New England flood control projects in 1956.

"Of the \$330,000,000 in New England flood control projects authorized by Congress since 1939, funds for completion of only \$70,000,000 of them have been appropriated," he stated.

Advice for City Slickers

For the city slicker who dreams of retiring to a farm, Paul A. Jones of West Rindge, N.H., has some advice. Says the proprietor of the Jones Farm, which has been operating since 1781, "they better have a bank roll to go along with the farm."

Mr. Jones, who has one of the most historic farms in New England, was born in the 174-year-old homestead and says farm life "is great." He pointed out that "what money is made on farms today is made on the larger farms, one of the reasons is that the small farms need the same expensive equipment as a large farm."

Mr. Jones feels "the nation would breed a stronger more honest people generally if there were more small farms." He makes a living on his seven generation farm from 70 head of dairy cattle.

Insect Visitor

New England had more than its share of insect pests this year, and two seldom seen in these parts made their appearance. The hurricane purportedly wafted waves of praying mantis insects into the six-state area, and the Saddle Prominent, a native North American caterpillar, teamed up with the notorious gypsy moth in attacking Massachusetts forests.

In addition, an outbreak of army worms spread across three states, New Hampshire, Massachusetts and Connecticut, and Dutch elm disease, still raging, threatens to wipe out historic shade trees in Boston and Providence, R.I.

Better Selling

Richer Sales Fields for Dealers

New England Area Demanding Action On Flood Control

BOSTON — New England is up in arms over flood control, a project never deemed necessary since the Pilgrims landed at Plymouth.

Since the flood losses this year, estimated at more than two billion dollars, the region is aroused and New Englanders are ready for action on flood control.

Special meetings of the governors of the six states have been held and the New England delegation in Washington is working to push flood control legislation. That some kind of insurance program will be enacted by Congress during the next session now seems likely.

The appalling flood losses in Massachusetts, Rhode Island and Connecticut this fall triggered off the demand for flood control legislation.

The Boston Herald, editorializing on the situation, said: "New England, to be sure, has never before been sufficiently aroused to concern itself seriously over flood control. In an 'average' catastrophe a few lives are lost, a few homes washed away, a few factories ruined, but nothing (except for those directly affected) to remember six months or a year later. This time, however, the loss has been far too serious to ignore. Too many have been hurt."

None of the flood loss was covered by insurance. Private insurance companies have not written flood insurance. The reason reported is that it would have no broad base. A farmer on a hill would not buy it. Everybody, however, buys fire insurance, which allows insurance statisticians to figure out cheap rates, forecast probable fire losses, and allow the companies to operate in this respect on a basis which is sound.

Therefore, there was no way for farmers to buy flood insurance even though they desired to do so. Farm homes, barns, tobacco sheds, farm implements and machinery were total losses in the recent floods.

U.S. Sen. John Kennedy of Massachusetts, who is working to obtain flood insurance law approval and is sponsoring the Kennedy-Saltonstall bill, said he would prefer that flood insurance be handled by private interests entirely, but that he was one of the first to realize that such insurance from private sources is virtually unavailable.

"Practically none of the billions of dollars of destructive damage suffered in New England was covered by any flood insurance of any kind," he said. "This is perhaps the most glaring gap," he said, "in the protection offered by an industry which has otherwise insured everything from race horses to the legs of famous actresses."

Under the Kennedy-Saltonstall bill, \$1,500,000,000 would be available within the first three years for the operation of a flood insurance program. It would be administered by the small business administration, but the insurance would be available to home owners as well as business men.

Worst hit in the two floods this fall in New England was Connecticut where some towns, twice flooded out, are to be completely abandoned and state highways put through their locations. A general moving to higher ground and awareness of flood potentials are taking farms, business firms and home owners away from lowland areas throughout the recently flooded sections.



WORLD REPORT

By **GEORGE E. SWARBRECK**
Crolife Canadian and Overseas Editor

The demand for pelletized fertilizers in Cuba is increasing. They are used on the large rice plantations where spreading is done by aircraft. Pelletized fertilizers, trade sources say, are the most practical for the purpose and, moreover, they keep better than powdered fertilizers in the humid climate.

There are no facilities for pelletizing in the Cuban plants and all supplies have to be imported. Indications are that the demand will grow.

Cuba imports only a small amount of mixed fertilizers but depends on foreign sources for all materials used by the 16 plants scattered across the island. One has facilities for treating rock phosphate, but the remainder are equipped only to produce the various formulae used by Cuban cultivators.

In the year ended June 30, 1954, a total of 138,000 tons of various fertilizer ingredients was imported. Rock phosphates at 26,427 tons made up the largest single requirement, with ammonium sulfate at 25,042 tons a close second. Superphosphates, single and triple, made up a total of 28,522 tons. Only 1,000 tons of urea were imported.

In the fertilizer year 1951-52, the domestic industry produced 200,000 tons of mixed fertilizer, but in the following year the total dropped to 112,844 tons. In 1953-54, the total started a slow climb back but reached only 128,227 tons.

The decline is explained by the sharp cutback in sugar cane cultivation brought about by the cut in sugar production from over 7 million long tons in the 1952 crop year to about 4.5 million tons in the succeeding years.

Despite this the outlook for the sale of fertilizers in Cuba is bright and exporters should benefit. Rice cultivation is being extended and the demand for pelletized fertilizers may help take up some of the lag.

The U.S. is the major supplier of fertilizer to Cuba though the Netherlands and Germany have made a little headway in the market. All imports are free of duty.

New Factories Planned

Three new factories have been built in Sicily for the manufacture of phosphate, nitrogen and potash fertilizers. The need for the factories has arisen because of increased domestic and export demands. Total output is estimated at 186,000 tons a year. The consumption of fertilizers in Italy during 1953-54 totaled 3,281,090 tons against 2,559,546 tons in 1950-51. The market continues to grow and the producers hope to add to their business by extending their export outlets.

Jamaican Aid

The government of Jamaica has authorized a loan equivalent to \$430,360 to aid citrus growers increase their usage of fertilizers. Significant increases in import requirements are seen as a result.

Sulfate of ammonia is used extensively on the plantations, and Britain is the major supplier. Potash and superphosphate have been imported from Europe, while some potash has been produced locally. When the program gets under way it is expected that several thousand tons will have to be procured overseas since local facilities are inadequate or non-existent.

Netherlands Nitrogen

Manufacturers of nitrogen in Holland are anxious to maintain and extend their existing export markets but they are finding this difficult to

do with their present plants because of the rising domestic demand.

In 1939, the consumption of nitrogen fertilizers in the Netherlands barely topped 500,000 tons. Today it is over 900,000 tons and still rising.

The present average dressing to grassland is equivalent to 3 cwt. to the acre of ammonium sulfate; but experts predict that this will rise to 5 cwt. Existing domestic production could cover this, if it were not for the necessity of protecting the export markets. Accordingly, plans for the erection of additional factory capacity are well on the way to completion. Oil is replacing coke for the production of hydrogen required for the synthesis of ammonia.

Australian Acid

More than 75% of Australia's total sulfuric acid output is used for the production of superphosphate in the agricultural industry. The current usage is more than 44% over pre-war levels, with a total of 1.7 million tons applied to farm lands.

The amount of land known to be suitable for top-dressing considerably exceeds that now being treated. Thus, there is every chance that the demand for superphosphate for pasture improvement will expand rapidly in the near future.

The Bureau of Agricultural Economics estimates that total superphosphate needs could top 2,250,000 tons a year by 1958, an amount greatly in excess of the capacity of existing manufacturing facilities in Australia. Plans are being made to boost the output of acid to fulfill these ever-growing needs.

Prices are having to rise in line with the general trend. In Western Australia, for instance, superphosphate is now selling at the equivalent of \$30.05 ton, in bags, less 60¢ a ton for payment on delivery. A price increase of 65¢ ton was recently imposed because of an increase in the cost of phosphate rock. This, in turn, cost more because of a hike in ocean shipping freight rates.

Turf Conference Set

BERKELEY, CAL.—Soil, weeds, and water will be the major topics covered in the annual Northern California Turf Grass conference to be held on the agricultural campus of the University of California at Davis on Monday and Tuesday, Jan. 30-31.

A special feature this year will be a half-day school on turf grass identification. The program for the second day will consider such subjects as new long-term fertilizers, crabgrass control, soil compaction, soil amendments, new methods of soil fertilization, sterilization, Bermuda grass control, and water management for turf.

The conference is sponsored by the Agricultural Extension Service, the departments of landscape management and irrigation and the Northern California Turfgrass Council.



FORMER 4-H MEMBERS HONORED—Eight former 4-H members were honored recently at the National 4-H Club Congress in Chicago as winners of National 4-H Alumni Recognition Awards. The program is conducted by the Cooperative Extension Service. The awards are provided by Olin Mathieson Chemical Corp. through the National Committee on Boys and Girls Club Work. Shown above, left to right, are: Mrs. Richard Darden, homemaker, La Grange, Ga.; William D. Knox, editor of Hoard's Dairyman, Ft. Atkinson, Wis.; Dr. Russell B. Dickerson, associate dean, College of Agriculture, University of Pennsylvania; Clyde H. Duncan, assistant agricultural editor, University of Missouri; Dr. Ben H. Hilbun, president, Mississippi State College; Sam L. Nevins, vice president, Olin Mathieson Chemical Corp., and Dr. Paul D. Sanders, editor of the Southern Planter, Richmond, Va.

Test Areas for a Complete Study Of Grain Contamination Suggested

DENVER — The establishment of test areas in which a complete grain sanitation program could be placed in operation for study was recommended recently by Dorr D. Green, U.S. Department of the Interior, before the National Pest Control Assn.

Mr. Green, chief of the predator and pest control branch, said that there was no adequate answer to the extent that the nation's wheat could be cleaned up for use in human food. To help in getting an answer, he suggested test areas in the winter wheat and spring wheat sections, as well as one in the mixed corn-wheat producing area.

Such tests should include a complete sanitation program placed in operation throughout the entire area and the areas should be large enough to demonstrate statistically what improvements can be expected by the establishment of the best-known sanitation practices, he said.

"The production of clean grain for use in producing food products is a challenge to the pest control industry as well as to the government, farmers, grain handlers, millers and food distributors," Mr. Green said. "Any effective program, be it large or small, will require organization and the full continued support of all agencies and individuals that may be affected."

"Incentives or penalties in the price received for clean grain or other food items as compared to a filth laden product would help materially. I'm afraid, however, that some financial loss must occur before sufficient interest will be aroused to get real action in a food sanitation program."

At the present moment, the speaker said he knew of no permanent, full-time public servant who is devoting his full time to grain or food sanitation work, at the producer level, either in operations or in research, looking to the solution of the problem.

Mr. Green referred to the Food and Drug Administration order announcing new filth content standards on food wheat, explaining that through Aug. 30 of this year inspectors condemned 1% of 3,901 cars of wheat—if the standards to be effective next July 1 had been in operation, 2 1/4% would have been diverted to feed channels.

"The real problem in grain sanitation, or as I prefer to term it 'food sanitation,' is to obtain complete sanitation practices in the growing, har-

vesting, transportation, storage and manufacture of food products," Mr. Green said. "This means that so far as grain is concerned, there must be established complete sanitation practices in the field, in farm storage, in transportation, in local elevators and in terminal elevators. All who handle food commodities must be completely conscious of the fact that their products are intended for human consumption."

The Fish and Wildlife Service has recently completed arrangements with the U.S. Department of Agriculture for aiding with the establishment of a model binsite to be located near Watseka, Ill. It is planned that this installation will be quite elaborate and will contain a number of different types of storage structures. The speaker referred to the University of Minnesota study showing that when rodent urine is deposited on wheat, 30% of the urea penetrates through the bran coating and about 3% of the phosphates penetrate into the starch. Both urea and phosphates from the urine can be detected in flour milled from such wheat.

"We are all in need of information as to what result might be expected from food sanitation work; particularly as applied to grain," Mr. Green concluded. "Certainly the problem is more than just killing pests that may contaminate the product. The problem is to produce, market and process grain and other foods in such a manner that the final product available to the public as food will be as sanitary as it is possible to make it."

St. Regis Opens Sales Office at Little Rock

NEW YORK—St. Regis Paper Co. announces the opening of a multiwall packaging division sales office in Little Rock, Ark. Bruce C. Kelly, previously sales representative and office manager in Birmingham, will head the new office, located at 38 Barbara Drive.

Mr. Kelly will work under the direction of the multiwall packaging division's southwestern district office located in Dallas.

This division sells multiwall paper bags, bag making and bag filling equipment used to package rock products, manufactured feeds, chemicals, agricultural commodities and a number of other products.

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IN THREE CONTINENTS

FAO to Step Up Measures To Control Locust Plagues

ROME—Increased activity in many parts of the world against locust plagues during the next two years was approved by delegates to the conference of the Food and Agriculture Organization of the United Nations, which was held here recently.

In a comprehensive resolution, the conference authorized the director-general to pursue his present policy of coordinating international measures against locusts, not only in the Arabian Peninsula where most of FAO's work has so far been done, but also in every part of the world where such international action is required.

As in previous years, it will be the desert locust that attracts most of FAO's attention, and in 1956 the organization expects to spend about \$100,000 on control of this pest under the technical assistance program; it will be used chiefly in coordinating and supporting the efforts of the invaded countries.

This sum is small compared with what desert locust invasions may cost individual countries as was pointed out by the Moroccan member of the French conference delegation. Last year's invasion, he said, had cost his country around 5½ million dollars, and already a further invasion is in progress.

Point was added to the conference debates on this subject by news which came to hand actually during the meetings, telling of surprise moves by the plague across from Libya . . . now heavily invaded . . . eastwards into Egypt and then on to Jordan and other Near Eastern countries including Israel.

As an FAO spokesman has pointed out, these current migrations are contrary to what is normally expected at this time of year, a fact which emphasizes once again the need for really good international reporting systems as a basis for large-scale control measures against such a plague, which extends, at one time of the year or another, from Morocco to India.

For the 1956 campaign against the desert locust in the Arabian Peninsula, the number of control teams and vehicles, and amounts of equipment and insecticides used are expected to be even greater than in previous years, and the cost of the campaign is already estimated at over \$1½ million. The greater part of this will be provided, as formerly, by the various governments contributing to the campaign, either in cash, supplies or by providing control teams.

These governments are Bahrain, Egypt, France, India, Iran, Iraq, Jordan, Kuwait, Pakistan, Qatar, Saudi Arabia, Sudan, Syria, Turkey, United Kingdom, Yemen and Arab League.

Aircraft are expected to play a considerable part in this Arabian campaign, and three aircraft, formerly on loan to the British Desert Locust Control Organization operating in East Africa, are being transferred to the Arabian Peninsula for this purpose. These aircraft, which will be operated by one or another of the countries taking part in the campaign, may prove especially valuable under conditions in the Arabian Peninsula, where locust swarms may exist many miles out in the desert.

It is expected that they will be used especially for scouting and for control of immature "hopper" swarms in such remote areas, inaccessible by any other means, and also for the direct protection of especially valuable agricultural crops. Aircraft

may also help in dealing with flying swarms. New techniques for this latter work have in fact been devised in East Africa during the last few years, through the use of these FAO aircraft.

The conference also approved FAO's newly formulated long-term policy for desert locust control. It has been recognized that the policy of suppressing desert locust plagues wherever they may be attacked, with particular emphasis on the seasonal breeding grounds of greatest strategic significance, cannot be regarded as the most rational one for dealing with this pest.

Plagues of other locust species (such as the Central America locust which is of importance to another group of FAO member governments) are prevented by action in their outbreak areas.

While the ways in which desert locust plagues come about appear to be substantially different from those of other locust species, it may prove possible to establish an effective preventive policy. Among FAO's activities in dealing with desert locusts, therefore, is the establishment of a panel of international experts to examine the possibility of working out such a long-term policy for controlling the desert locust.

Only such a scheme, successfully put into operation, can guard against the repetition of plagues such as that which has occupied the attention of so many countries for the past four years and has cost them many millions of dollars a year, according to FAO.

Oregon Fertilizer Program Announced

CORVALLIS, ORE.—The program for the Willamette Valley Fertilizer Dealers' Meeting scheduled to be held Jan. 18, 1956, at Oregon State College here, has just been announced.

H. B. Cheney will present a paper, "What Is the Basis of Fertilizer Recommendations?" describing soil fertility research work in Oregon and the use of this information.

L. A. Alban is to describe the soil testing service operated by the state, and will tell how it benefits the farmers. Title of his talk is "Oregon State's Soil Testing Program."

The relationship of lime and the efficient use of fertilizers will be the subject for discussion by M. E. Harward. He will talk on some of the soil acidity problems in western Oregon.

"Fertilizer Recommendations for Pastures," is the subject assigned to H. L. Schudel. He will speak on growing legumes and grasses for irrigated and dryland pastures in Western Oregon.

Fertilizer recommendations for sweet corn and pole beans will be presented by H. J. Mack, while T. L. Jackson will present recommendations for fertilizer on small grain and grass seed crops, to conclude the day's sessions.

Heads ACS Division

NEW YORK—Dr. Albert L. Elder, director of the Corn Products Refining Co., Argo, Ill., has been elected chairman of the Division of Agricultural & Food Chemistry, American Chemical Society, for 1956. Dr. D. M. Doty, American Meat Institute, Chicago, was elected chairman-elect, and F. M. Strong, University of Wisconsin, was renamed secretary-treasurer.



OKLAHOMA MEETING—The contributions of Dr. H. F. Murphy, head, agronomy department, Oklahoma A&M College, Stillwater, to Oklahoma agriculture were recognized at the Nov. 29-30 meeting of the Oklahoma Plant Food Educational Society, Inc. Dr. Murphy (seated, top photo) is holding a photo light meter he received as a gift from the society. Looking on, from the left, are: Dr. W. E. Irwin, Phillips Petroleum Co.; Parks Yeats, Oklahoma director of feed, seed and fertilizer control; R. J. Kenyon, Phillips Petroleum Co., president of the society; and George Summers, Jr., American Cyanamid Co. In the lower photo "looking up" to 6 ft., 8 in. P. J. Freiburger (center), Bar-Dew Grain & Feed Co., Bartlesville, Okla., are the following, from the left: G. W. Dowell, Dowell-Tyler Fertilizer Co., Stillwater; Ferdie Deering, editor, Farmer-Stockman, Oklahoma City; James Meggs, Nichols Fertilizer & Chemical Co., Oklahoma City; and O. E. Jones, Oklahoma Anhydrous Ammonia Co., Muskogee. Inset is Dr. Vincent Sauchelli, Davison Chemical Co., Baltimore, Md., one of the speakers on the program. For a report of the conference see page 1 of the Dec. 12 issue of Croplife.

Lion Oil Co. Receives 5 Special Awards for Safety

EL DORADO, ARK.—Lion Oil Co., a division of Monsanto Chemical Co., was presented five safety awards recently in recognition of safety achievement, four at the El Dorado chemical plant and one to the general service department, according to an announcement by company officials.

Individual safe-working awards were also presented at Lion's three manufacturing installations to 141 employees and to seven general service personnel, representing an aggregate of 1,345 safe man-years without a lost-time accident.

The four industrial safety awards at the chemical plant are the award of honor plaque and the individual plant award, both from the National Safety Council, a certificate of honor presented by the Joseph A. Holmes Safety Assn., and a certificate of achievement award from the Manufacturing Chemist's Assn. The general service award is the Joseph A. Holmes certificate of honor and represents 618,730 safe man-hours without a lost-time accident.

The award of honor plaque, honoring 3,104,723 safe man-hours worked without a lost-time accident from July 6, 1953, to Dec. 31, 1954, is the second such award presented to the chemical plant by the National Safety Council. The award of honor flag, which accompanies the honor plaque, displays two stars to denote this second achievement. At present, the plant is extending this safety record

and has recently completed over 4,800,000 safe man-hours without a lost-time accident through a period of 890 days.

The chemical plant, having operated without a lost-time accident during 1954, earned the individual plant award by winning first place in competition with 32 other plants of equal size. This marks the third time that this award has been presented to the plant by the National Safety Council.

Two other awards, the certificate of honor from the Joseph A. Holmes Safety Assn. and the certificate of achievement award from the Manufacturing Chemist's Assn., were presented in recognition of over one year of plant operation without a lost-time accident. This is the seventh time the Holmes award has been presented to the El Dorado chemical plant. The Manufacturing Chemist's Assn. certificate has been presented to this plant two times previously.

Du Pont Official Retires

WILMINGTON, DEL.—J. Warren Kinsman, vice president and member of the executive committee of E. I. duPont de Nemours & Co., Inc., has retired after a career of more than 40 years with the company. He had worked his way up through the ranks, and when assistant general manager of the organic chemicals department, he helped establish the firm's agricultural disinfectants laboratories some 12 years ago. He was also active in research and development of wood preservatives and numerous other materials.

Fred C. Bishopp Says:

Weather an Important Factor In Determining Degree of Resistance in Cotton Pests

There are times when every insect control program needs careful, full and unbiased review. This, in my opinion, is one of those times, particularly in regard to the question of reported development by the boll weevil of resistance to the chlorinated hydrocarbon insecticides.

Attention was directed to this problem when planters in certain areas in Louisiana complained in 1955 that they were experiencing difficulty in obtaining the degree of boll weevil control they expected from recommended insecticides. Accordingly, rather late in 1955 the Louisiana Experiment Station began some laboratory and field plot tests of a number of insecticides, and in September published (1) their results.

Publication of these relatively limited but careful tests together with the unsatisfactory results obtained by many growers in limited areas, apparently led some farmers to consider throwing over at once practices that had for years given effective control. This disturbing situation definitely calls for careful analysis.

Of course the development of resistance to insecticides of certain insects has long been recognized and has presented serious difficulties in the control of a number of pests. Resistance has been most striking and most publicized among the flies, mosquitoes, scales, mites and moths. No outstanding cases of this phenomenon have been recorded among the beetles.

The experiments by the Louisiana authorities indicate that the boll weevil in certain areas is showing resistance to several chlorinated hydrocarbons. Even though there is evidence of the appearance of resistance in restricted areas under adverse weather conditions there is no reason for farmers and the insecticide industry to go into a tailspin.

It is generally admitted that a number of factors aside from possible resistance could explain in part the difficulty experienced in controlling the boll weevil in certain areas during the past season.

First, there was a heavy carryover of boll weevils last winter. It appears that many cotton raisers didn't take the situation seriously until the first generation weevils were on them and some paid little attention until even later when their fields were very heavily infested. Every farmer knows that it is practically impossible to make a crop after heavy migration has set in. About all that can be expected under such conditions is to protect the nearly mature bolls.

Those who attempted to use insecticides according to recommendations were seriously handicapped by frequent rains in mid-season, and later in the season were beset by migrating weevils from their neighbors. Let us look at the climatic conditions prevailing in some of the areas from which reports of poor insecticidal control came.

In the areas in Louisiana in which weevil control was difficult the outstanding climatic element was the wet cool summer. Rainfall was above average in April in the Northeast and continued somewhat above normal in May and near normal in June. June temperatures were well below normal, 2.2° for the state as a whole, and 2 to 5° below in the trouble spots.

The real problem of weevil control began in July when temper-

atures continued 1° below average for the state, and rainfall was excessive, from about 2 in. to 4.75 in. above normal in different localities with an average for the state of 3.5 in. or 62% above normal. Temperatures for the state continued low during August and rainfall continued high in troubled areas of the Red River Valley.

Look at the Weather Bureau's rainfall records during July in some of the areas where weevil control was difficult. Lake Providence recorded 7.27 in. with rain falling on 14 days, the longest break without rain being 7 days. Tallulah had 9.38 in. on 13 out of the 31 days. Monroe recorded 13.42 in. on 17 days, with 5 days as the longest period without rain. Natchitoches recorded 7.9 in. with 16 rainy days. Alexandria had 7.05 in. falling on 16 days, and Colfax 11.43 in. on 19 days.

Is there any wonder boll weevils were hard to control? How could effective insecticidal control be brought about under such conditions?

Greatest difficulty in controlling the boll weevil in Mississippi was experienced in the Lower Delta area. It is interesting to note that during July there was considerably more rain in that area than in the Upper Delta. Rolling Fork, Holly Bluff and Vicksburg recorded 8.33, 8.20 and 8.07 in., respectively, with rainfall on 14, 19 and 16 days, respectively. Greenville was intermediate with 6.96 in. of rainfall on 14 days.

In the Upper Delta area, rainfall ranged from 4.41 in. at Scott to 5.99 in. at Cleveland. The number of rainy days ranged from 8 to 11. Greenwood (C.A.A.) recorded 4.28 in. of rain, falling on 17 days. It thus appears there is a close relationship between the rainfall and the failure of some Mississippi planters to control weevils.

During August, in most trouble areas, mean temperatures continued below normal but the rains slackened early in the month so that the total for the month was near normal. Boll weevils had by that time become extremely abundant and hordes of them were migrating.

The frequent and heavy precipitation interfered seriously with insecticide application schedules and washed off the poison almost as fast as it was put on. It also caused a rapid vegetative growth. The development of plants of tremendous size required additional amounts of insecticides. Such additional amounts frequently were not applied. The large plants also shaded the ground to an extent favorable to weevils. Some farmers asserted that practically every square infested produced a healthy boll weevil. It is to be noted that reported trouble with boll weevil control was largely confined to river bottoms along the Mississippi, Ouachita and Red Rivers.

The heavy and frequent rains undoubtedly interfered with the multiplication of biological control agents such as delicate wasp parasites and ants that normally play at least some part in killing immature weevils.

The rains made available not only the nitrogenous fertilizer that was applied in unusually large amounts during the past season, but also the fertilizer applied last year and not utilized by the 1954 crop because of that very dry season.

Still another factor that operated in favor of the boll weevil was the inability of ground machines and airplanes to get the poison on

at the right time and in the right way and the demand for airplane applicator service often exceeded the supply when the flood of insects appeared. In some instances at least, the applicators, in trying to meet the demand for their service, did a slipshod job. There was also considerable wind interference with proper and timely application.

Weather conditions have a tremendous effect on cotton insects of all kinds. These effects are most complex, and in my opinion are understood only in a very general way. J. C. Gaines and associates (2, 3, 4, 5) have studied the effect of temperature, humidity, dew, sunshine, rain and wind on the action on the boll weevil of a number of insecticides and concluded that these factors are important in reducing the toxicity of certain of the commonly used insecticides. More research in this field is needed.

Among other little-known effects are those of rain, soil moisture and temperature on the fumigating or other indirect action of several of the materials on weevils in the squares. This mortality was first determined by Rainwater (6) in 1947 when he found a high percentage of weevils in squares in the field were killed by one of the chlorinated hydrocarbon insecticides.

In 1952 Lukefahr and Gaines (7) found that a large percentage of weevils in squares in the laboratory were killed by several of the chlorinated hydrocarbons. In field tests that year, however, climatic conditions completely prevented weevil kill by fumigation.

It is obvious that weather and other conditions were extremely favorable for boll weevil development and unfavorable for effective use of insecticides. These conditions may have been as important as actual resistance to insecticide in boll weevil control operations last season.

Seasonal resistance of the boll weevil to various insecticides has long been recognized. For example, laboratory and field tests carried out by C. F. Rainwater and J. C. Gaines (8) during 1948, 1949 and 1950, showed that the number of weevils that survived a given dosage of several of the chlorinated hydrocarbons and calcium arsenate increased month by month from June to October. These workers concluded that "Extremely high dosages of all materials were necessary to kill high percentages of the population of late season weevils. For instance it required 240 times as much of one of these insecticides to kill the same percentage of weevils in October as in July."

These men also showed that under greenhouse conditions, during October, 1950, the seven insecticides tested lost their effectiveness against field weevils with surprising rapidity. Since fall weevils are preparing for hibernation they are fatter and perhaps not feeding as voraciously. Reiser and associates measured the lipid or fat content of weevils throughout the season and found it to be as low as 7% in overwintered specimens as compared with a high of 22% in October specimens. They conclude that higher fat content, larger size and increasing resistance of late weevils may be due to the nutritional advantage of boll-reared over square-reared insects.

Now, how serious was the weevil situation in 1955? Admittedly much cotton was lost to the boll weevil during that season. On the whole, however, we didn't do so poorly. Estimated per acre yields for 1955 in Louisiana and Mississippi exceed by more than 35% the average for the years 1944-1953, inclusive. The U.S. Department of Agriculture late this year estimated a per acre yield in 1955 of 572 lb. lint cotton in Mississippi and 467 lb. in Louisiana.

As of Nov. 1, 1955, running bales ginned in Louisiana reached 477,286

EDITOR'S NOTE

This article was prepared by Dr. Fred C. Bishopp for presentation at the Beltwide Cotton Production Conference held at Memphis, Tenn., Dec. 15-16, 1955.

from 607,000 acres as compared with 501,767 on that date in 1954. Mississippi on Nov. 1, 1955, had produced 1,566,968 running bales from 1,679,000 acres as compared with 1,325,300 bales in 1954, or a 15% increase over last year on a considerably reduced acreage.

Data are not available on the actual per acre yield in the Parishes in Louisiana and counties in Mississippi where most boll weevil trouble was experienced. However, field contacts indicate yields not much below the average. Many growers in these areas also state they are making from one to one and three fourths bales per acre. It is true many insecticide applications were required to make these yields. Twelve to 20 applications were not uncommon and some farmers had to use more than 20 to get seasonal control. This means high cost production. This insecticide cost, in some cases, from \$35 to \$40 per acre or even higher.

Everyone in the areas where the weevil was hard to control would like to know what is best to do if we get another year like 1955. Let us hope that we will not get another precisely like it, and the chances are we won't at least in the immediate future. In the meantime, there will be opportunity for the entomologists to evaluate thoroughly the resistance question. That question definitely needs an intensive and extensive study not only on the boll weevil but also on many other cotton pests. Research can find answers to this problem and sound answers may mean millions of dollars saved to the cotton industry. Such research takes money and the cotton industry should see that ample funds are available.

No doubt some cotton growers in localities where resistance was manifest will turn to calcium arsenate again. This material if properly used will give effective weevil control although the dosage recommended now is much more than in the old days. It must be remembered, however, that in switching to that insecticide several difficulties will again present themselves. (1) Greater hazard to livestock, and to man through contamination of adjacent pastures and crops; (2) intensification of other cotton insect problems such as that of aphids and bollworms and (3) some danger of damaging certain other crops either directly, as happens with soybeans, pecans, rice and sweetpotatoes, or through deposits in light sandy soils.

A new phosphorus compound "Bayer 17147," showed much promise in field tests in 1955, but it is unlikely that it will be available for commercial use in 1956. Methyl parathion also has been reasonably effective against the boll weevil but it is not sufficiently persistent to protect cotton against migrating weevils. These phosphorus materials are highly poisonous.

We already know many things that can be done to assure good yields of cotton even under adverse conditions. In my own opinion the following practices, if carried out, will go far to assure a good crop whether or not the boll weevil is becoming resistant to chlorinated hydrocarbons.

1. Gather the present crop as soon and cleanly as possible, destroy the stalks, and turn under the debris. Use effective stalk shredders, or graze the crop heavily if livestock are available.

2. Plant well adapted varieties in well prepared soil as early as consistent with local conditions. A uniform planting period throughout a community is highly desirable.

3. Treat the seed for disease control.

4. Plant cotton as far as possible

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Program Set for Nebraska Fertilizer Dealers Conference

LINCOLN — Members of the Nebraska Fertilizer Institute and soils extension personnel from the University of Nebraska met recently at the College of Agriculture here to plan the program for the annual Nebraska Fertilizer Dealers Conference, to be held Jan. 3-4 at the College Activities Bldg.

One of the highlights of the meeting was that the Nebraska Fertilizer Institute, Inc. decided to honor the top ten corn producers in each area (irrigated and dryland) that participated in the "Reach for Top Corn Yields" sponsored by the College of Agriculture.

The top ten producers in each division will be awarded a plaque and they and their wives will be guests of the Nebraska Fertilizer Institute, Inc. at the conference banquet.

The Jan. 3 program for the dealers conference will include the following:

A film, "The Plant Speaks Through Deficiency Symptoms;" Welcome by E. F. Frolik, associate director of the Nebraska Agricultural Experiment Station; "Nebraska Needs More Fertilizer," M. D. Weldon, extension agronomist; "Nitrogen Helps Plants to Take up Fertilizer Phosphorus," R. A. Olson, associate professor of agronomy; "Corn Borer Control," R. Roselle, extension entomologist; a film, "The Plant Speaks, Soil Tests Tell us Why;" "Recent and Probable Future Trends," Malcolm M. McVickar, National Plant Food Institute, Washington, D.C.; "Soil Tests for Available Nitrogen," Clinton Hoover, graduate student; "Conditioning the Soil for Testing," Delno Knudsen, assistant extension agronomist; "Reach for Top Yields of Corn," M. D. Weldon; and a panel, "How We Grew 140 Bu. of Corn," by three farmers, W. E. Ringler, assistant extension agronomist, leader.

Dr. McVickar will be the principal speaker at the banquet the evening of Jan. 3 at which the top corn contest producers will receive special recognition.

The Jan. 4 program will include:

A film, "Weather or Not;" "Organic Matter and Nitrogen Maintenance in Nebraska Soils," H. F. Rhoades, professor of agronomy; "Subsoil Moisture and Fertilizer Response on Wheat," Fred Koehler, assistant professor of agronomy; "What About Trace Elements for Nebraska?" Leon Chesnin, associate professor of agronomy; "Fertilizers Needed for Better Quality Wheat," W. E. Ringler; a film, "The Grasslands Miracle;" "Alfalfa Root Studies: Moisture, Nutrients, Oxygen, Temperature," Roy Lipps, instructor in agronomy; "Effects of Fertilization on Chemical Composition of Wet Meadow Vegetation," Alan Moore, graduate student; "Fertilizer Results on Wet Meadows," E. M. Brouse, assistant agronomist; "Pasture Studies," E. C. Conard, associate agronomist.

Agriculture Yearbook Announced by USDA

WASHINGTON—The U.S. Department of Agriculture has announced publication of its 1955 Yearbook. The 752-page volume is devoted to drought, floods and the normal sources and uses of water.

Entitled "Water," the book contains considerable information on all aspects of a subject that has become a major national concern. Its 95 chapters are written, mostly in nontechnical style, by 149 specialists in the USDA, state agricultural colleges and divisions, and private and federal organizations whose work pertains to water. The book has many drawings, maps, and photographs.

GRANULATION MEETING

(Continued from page 1)

at the 1954 meeting of the Entomological Society of America, at Dallas, Texas—(CROPLIFE, issue Dec. 13, page 21), has now been added to the list of recommended control measures in the 14 states of the north-central region. Those recommendations set the framework for most of the discussions at the Ames meeting.

Briefly, these are the recommendations adopted by the entomologists of the region:

First, use of granular insecticide formulations is an added way of combating the number one insect pest of corn. It does not take the place of the proven effective emulsion spray treatments.

DDT is the only insecticide recommended for application as a granular material. Recommendations suggest a ground-applied rate of 15 to 20 lb. or an air-applied rate of 20 to 25 lb. of 5% DDT on a carrier of granular Attaclay (RVM-AA), tobacco base or KWK Bentonite, with a particle size in the 30- to 60-mesh range. This treatment has given control as good or better than by emulsion sprays.

Equipment recommendations: Ground equipment is generally limited to adaptations of metering mechanisms of grass seeders, grain drills and fertilizer distributors of some manufacturers. Conventional seed hoppers or individual metering hoppers have been used satisfactorily. Conventional row crop dusters have been unsuitable, because the material tends to pack and bridge in the hopper and is delivered to the plant in an unsatisfactory pattern at too high a velocity. For best results, the speakers said, equipment should deliver the granules in a band of 12 to 14 inches wide, about 8 to 10 inches above the whorl of the plant.

Air equipment designed for seeding of rice gives best distribution of granules with the aircraft flying 35 to 40 ft. above the ground. Such seeding equipment does a better job than conventional crop dusting equipment.

Standard recommendations on treatment still stand. That's when 75% of the plants show leaf feeding for first brood and when there are 100 egg masses per 100 plants for second brood.

The idea that led to granular insecticidal control of corn borers, Dr. Brindley said, came from a conversation at the 1952 Entomological Society meetings. In the following spring the testing started and was expanded in 1954 and 1955.

Drs. Brindley, Cox and H. L. Harris—state entomologist and head of the college Zoology and Entomology Department—see in the granular materials a control measure that will be more widely accepted by farmers. They believe that farmers will gain better control of borers, although in experimental work in 3 years, only one test has shown granules significantly better. The research men have been able to get 80 to 90% control of corn borers with emulsion sprays, but they get repeated reports from farmers who don't get that kind of results. Some 30,000 acres of corn got granular materials in 1955, and Dr. Brindley said he has heard no such gloomy reports from that method as those he gets occasionally on sprays that farmers applied.

Dr. Cox sorted out the advantages and disadvantages of the granules, as the research men see them.

On the "plus" side, he listed these: Equipment for application is simpler to calibrate and simpler to operate than spray rigs.

Nozzle arrangement is critical with sprays, but granular equipment needs only to drop the granules in a 12- to 14-inch band over

the corn row, 8 to 10 inches above the whorl. That's easier to manage.

There's no water to haul, which can add up to a big job in spraying.

On a weight basis, there's only one-fourth as much material to haul and handle. There's no mixing necessary in the field.

The granules can be applied satisfactorily in a little more wind than is possible with spraying.

He cited some "minus" values, too: Application equipment won't likely be useful for many other jobs on the farm.

Compared to the drum of DDT concentrate, more space will be needed to store the granular materials.

Some solvents used in manufacture of some granules "burn" corn tissues.

Dr. Cox strongly urged manufacturers to test their materials before they put them on the market. He said the "burn" he's found apparently comes from the solvent used in manufacture—when he applied the granule carriers alone they caused no damage. He advised testing in the greenhouse and under field conditions before marketing.

"Failure to test and safeguard," he said, "could give granules a black eye before they've had a real chance."

Visitors to this all-day conference fired plenty of questions at the research men. Here are some of the questions and the answers given:

If granules have been better than sprays in only one experiment in 3 years, why the fuss about them?

Dr. Brindley: "The big interest is coming from the people who want to make them. Farmers who have tried them have apparently had better results than with emulsion sprays; probably they'll do a better job in the hands of the general operator. The fact that 130 men came to this meeting is evidence that somebody's interested."

Is the period for application as critical as with sprays?

Dr. Brindley: "There's a little more leeway, maybe 3 to 4 days on each side. The granules grow out with the whorl leaves. But they can't just be put on any old time and give good results. Timing recommendations are the same as for emulsions—when 75% of the leaves show recent leaf feeding by first brood; when there are 100 second-brood egg masses per 100 plants."

Did you test any granular materials that did not cause burn?

Dr. Cox: "Yes."

What types of solvents are best and safest?

Dr. Cox: "Manufacturers are in a better position to know the suitable solvents than we are. We don't know what's best. The desirable thing would be to find non-toxic solvents."

How much corn is too tall for tractor-drawn applicators?

Dr. Brindley: "We've had no difficulty with tractor-drawn equipment for first brood treatments. Corn 35 inches or a little more in extended height is pushed over by tractor axles, but it springs back to catch the granules as they drop from the applicator. Second brood treatments mean high clearance equipment."

What about airplane application?

Dr. Brindley: "The regional recommendations on airplane application were developed by workers in Wisconsin and Illinois. We didn't get it tested in Iowa. Illinois workers—George Decker, for instance—think granules will come closer to giving us an air-applied control for corn borers than we've had with emulsion sprays."

Did you test any insecticides besides DDT?

Dr. Cox: "Yes. Endrin and heptachlor look good. But only DDT is recommended for the 1956 season."

from good weevil hibernation quarters.

5. Do not fertilize too heavily nor irrigate too late.

6. Strive for an early and full set of fruit. This means control of early season pests such as thrips, fleahop- pers and other insects that retard growth and delay fruiting; also boll weevils if especially abundant.

7. Apply insecticides as recommended by state authorities both as to kind, application schedules and dosages. Remember that rank stalks and heavy foliage require more material than small plants of open growth. When applying insecticides do not under-dose.

8. Keep a close watch for insects in every cotton field. Thorough in- specting should be made at regular intervals, either by the grower himself or by a competent

9. A community-wide fight against the boll weevil, and a number of other insects as well, is of great value to all, especially in bad insect years.

We must not lose confidence in our improved insecticides and other insect control practices. Let us not sell in- secticides short. I find in discussing the 1955 crop with farmers in these distress areas that nearly all see where mistakes were made and most of them plan to correct these mis- takes as far as possible in 1956.

LITERATURE CITED

1. Roussel, J. S., and Clower, Dan, 1955—Resistance to the chlorinated hydrocarbon insecticides on the boll weevil (*Anthonomus grandis* Boh.); La. State Univ. and La. Exp. Sta. Cir. 41, 9 pages, September.
2. Gaines, J. C., and Mistic, W. J., Jr., 1951—Effect of rainfall and other factors on the toxicity of certain insecticides; Jour. Econ. Ent., 44(4):580-585.
3. Mistic, W. J., Jr., and Gaines, J. C., 1953—Effect of wind and other factors on the toxicity of certain insecticides; Jour. Econ. Ent., 46(2):341-349.
4. Gaines, J. C., and Dean, H. A., 1949—Effect of temperature and humidity on the toxicity of certain insecticides; Jour. Econ. Ent., 42(3):429-433.
5. Gaines, J. C., and Dean, H. A., 1950—Effect of climatic factors on the toxicity of certain insecticides; Jour. Econ. Ent., 43(5):602-605.
6. Rainwater, C. F., 1947—Some insecti- cides causing boll weevil mortality inside of punctured cotton squares; Jour. Econ. Ent., 40(6):923-925.
7. Lukefahr, M. J., and Gaines, J. C., 1952—Control of immature stages of the boll weevil; Jour. Econ. Ent., 45(3):430-433.
8. Rainwater, C. F., and Gaines, J. C., 1954—Seasonal decline in the effectiveness of certain insecticides against boll weevil; Jour. Econ. Ent., 44(6):971-974.
9. Reiser, R., et al., 1952—Variations in lipid content of the boll weevil and seasonal variations in its resistance to insecticides; Jour. Econ. Ent., 46(2):337-340.

AMERICAN CYANAMID

(Continued from page 1)

higher analyses fertilizers was said to be one of the reasons for the com- pany's decision to go into production of triple superphosphate.

Additional details on the new facili- ties are expected to be released by the firm within a short time. Formal construction work, other than service units, has not been started. Ground breaking ceremonies will take place around February.

Discussing activities of the com- pany, Mr. Towe said the agricultural chemicals division currently accounts for 11% of American Cyanamid's sales. About 27% of income was de- rived from the Lederle Laboratories division, 18% from organic chemicals, 15% from industrial chemicals, 10% from plastics and coating, with the balance of 19% coming in lesser amounts from the pigments, fine chemicals, Davis & Geck, Inc., and Chemical Construction Corp. divi- sions.

Mr. Towe estimated American Cyanamid's total sales this year will be approximately \$455 million. Last year's sales were in the neigh- borhood of \$398 million.

Profits before taxes for 1955 will be about \$72 million, compared to about \$51 million before taxes last year, Mr. Towe said.

Mr. Towe said promising results are expected from American Cyana- mid's new systemic insecticide "Thi- met" which was recently announced at the Cotton Production Conference.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

Pesticide Trade Looks Ahead to 1956

As this momentous year of 1955 grinds to a halt, it seems to be the time for many persons and industries to look back and reflect on the things done and undone that resulted in good or ill for those concerned. It is a happy time when an industry can review the business of the previous 12 months and come up with a list of notable accomplishments.

The pesticide trade did this just recently, and the picture is pleasing. Lea S. Hitchner, executive secretary of the National Agricultural Chemicals Assn., Washington, D.C., in a year-end statement, pointed with pride to a number of things that would bear reviewing here.

Everyone connected with the pesticide trade looks back on the year of 1951 as being the finest in history so far as the sales of insecticides were concerned. That year, it will be remembered, saw peak production and record-breaking sales that created a wave of optimism which in turn inspired many to assume that good times were here to stay.

The combination of increased output with slackening demand during the next and subsequent seasons brought on premature grey hairs and wrinkled brows to many an executive in the trade. But all that is past now, and the trade looks confidently ahead.

Indications are, the NAC says, that when the final production figures are in, this current year of 1955 may rank as the second best year in the industry's history. That means clearly, this has been the most productive year since 1951.

Prospects for the coming season are similarly rosy, the NAC says. One factor in this regard is the expanding domestic market which is expected to maintain the upward trend in sales volume in 1956. Farmers are beginning to recognize the fact that pest control chemicals can be used to cut unit costs of production, thus making possible greater profits from a given yield. "Until recently," the NAC points out, "farmers looked at pesticides as defensive tools to be used to protect crops against insect or disease invasions, rather than as a means to cut unit costs of production."

New developments of a semi-agricultural nature are also promising new types of markets for the pesticide trade. Federal and state road-building programs offer a hitherto practically non-existent potential for use of herbicides to keep weeds from marring well-landscaped roadsides. "It is becoming apparent that a growing volume of herbicides will be needed for the economical control of weeds along these roadsides, which, in some cases, will amount to 27 acres per mile of highway," the NAC declares.

Insecticides will also have a part to play in this program, obviously as should fertilizers and other chemicals of various nature.

Plant diseases are commanding more and more attention, and the necessity of controlling these costly diseases is obvious. An estimated loss of \$3 billion a year is suffered through the presence of these diseases. More and more effective products are being offered by the pesticide industry to control these expensive crop killers and it is obvious that the more valuable crops become, the greater will be the necessity to make them free from such inhibiting factors.

Keeping its feet on the ground in making an appraisal on the current status of the industry, the association reminded that despite these increases in sales and exports in 1955, the demand has not yet completely caught up with productive capacity. "The over-capacity built up during the period of rapid expansion from the end of World War II to the peak output year of 1951 still exists

in a number of major products," it states.

Still another unfavorable factor is mentioned in the statement. This is the matter of intense competition within the trade, which resulted in a low profit margin. Some 40,000 registered products are offered by the industry, with some 40 companies manufacturing the basic chemicals for the trade and about 200 major formulators mixing various chemical products to compound finished insecticides, fungicides, weed killers, and rodenticides.

Profits in 1956, we trust, will be better than in previous years. This must be the result, however, of more intensive selling and educating farmers on the regular use of pesticides as a preventive measure rather than as a sort of "fire department" to put down infestations already under way.

It seems that all such considerations boil down to the individuals in the trade who bear the responsibility of selling the industry's products. Manufacturing facilities are able to produce plenty; the technical men of industry as well as those in various governmental agencies are working hard to improve existing materials and the farm economy will need more pesticides to protect valuable crops. The sales forces of these companies hold the key to success in 1956.

It is good to bring before the entire trade the expressed philosophy of its association, particularly as an old year ends and a new one gets under way. We look forward to a prosperous 1956 in the pesticide trade. But it won't be such without a lot of hard work on the part of everyone!

Blames 90% Parity for Drop

The 24% decline in farm prices during the last five years is the result of unwise political pricing actions by Congress. High rigid 90% price supports on basic commodities have been in effect during this entire period and must be credited with most of the blame for the present unsatisfactory price trend in agriculture. Congress fixed prices at the 90% level during the war period to encourage increased production but refused to let the flexible price support plan go into effect after the wartime demands were reduced. Congressmen of both political parties who voted for rigid 90% price supports must now accept the responsibility for the failure of farmers to share in the present rising tide of economic prosperity. Some of these same Congressmen are out making speeches saying the answer to a 24% decline in farm prices is more government price fixing. How anybody can be that stupid, I don't know. The way to improve farm income is to reduce, not increase, government interference in the pricing and production of farm products.—Charles B. Shuman, president, American Farm Bureau Federation, in recent address before the Farm Equipment Institute, New Orleans, La.

Quote

"There is a tremendous market for the use of nitrogen. Educational programs of industry, the state agricultural colleges and extension services are doing an ever better job of showing the farmer why he needs nitrogen—and other elements—in this age of concentrated farming.

"Right now, educational programs have not increased the use of nitrogen sufficiently to stay ahead of the industry's ability to produce. In other words, the need is there, but the recognition of that need is not keeping up. The nitrogen market now existing is divided among the several different forms of nitrogen.

"Estimates of the size of the market vary greatly, as to the amount being used, compared to the amount of nitrogen that could be used. Economically, some say the figure is about 13% now."—Pax Shaffer, advertising executive before the Great Plains Agricultural Ammonia Assn., Des Moines, Iowa.



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MEETING MEMOS

Dec. 28-30 — American Phytopathological Society, Atlanta, Ga.; Glenn S. Pound, University of Wisconsin, Madison, Wis., Secretary.

Dec. 29—Symposium on Health Hazards of Chemicals, before the Pharmacy Section at Annual Meeting of American Association for the Advancement of Science, Atlanta.

1956

Jan. 1—Annual Nebraska Fertilizer Conference, Activities Nebraska College, Lincoln.

Jan. 2—American Phytopathological Society, New York, N.Y.; Shaw, Secretary-Treasurer.

Jan. 3—Annual Mississippi Fertilizer Conference, Mississippi College, Oxford.

Jan. 4—Texas Fertilizer Conference, Texas A&M College, College Station, Texas.

Jan. 6—Northeastern Weed Control Conference, Hotel New Yorker, New York, R. J. Aldrich, Rutgers University, Secretary.

Jan. 10-11—Eighth Annual North Carolina Pesticide School, North Carolina State College, Raleigh.

Jan. 11-12—Wisconsin Insect Control Conference, Lorraine Hotel, Madison, Wis.

Jan. 15-17 — New Mexico Grain & Feed Dealers Assn., Annual Convention, Hilton Hotel, Albuquerque, with Special Portion for Fertilizer and Farm Chemical Dealers; H. B. Hening, Albuquerque, Secretary.

Jan. 15-18—Northwest Vegetable Insect Conference, Portland, Ore.

Jan. 16-18—Southern Weed Conference, Ninth Annual Meeting, Hotel Jung, New Orleans; Dr. E. G. Rodgers, Florida Agricultural Experiment Station, Gainesville, Secretary-Treasurer.

Jan. 17—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga.; Fielding Reed, American Potash Institute, Mortgage Guarantee Bldg., Atlanta 3, Ga., secretary-treasurer.

Jan. 18—Western Oregon Fertilizer Dealer Meeting, Sponsored by the Pacific Northwest Plant Food Assn., Oregon State College, Corvallis, Ore.

Jan. 18-20 — Western Cooperative Spray Project, Imperial Hotel, Portland, Ore.

Jan. 26-27—Custom Spray Operators Training School, University of Illinois.

Jan. 28-29 — Agricultural Aircraft Assn., Inc., Sixth Annual Convention, Wilton Hotel, Long Beach, Cal.; Wanda Branstetter, Route 3, Box 1077, Sacramento, Cal., Executive Secretary.

Jan. 27—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver.

Jan. 30—Wisconsin Fertilizer and Lime Dealers Conference, Memorial Union, University of Wisconsin, Madison, Wis.

Jan. 30-31—National Cotton Council of America, Annual Meeting, Buena Vista Hotel, Biloxi, Miss.

Jan. 30-Feb. 3—Purdue Pest Control Operators School, Purdue University, Lafayette, Ind.

Feb. 6-8—Agronomy Section, Association of Southern Agricultural Workers, Atlanta (Ga.), Biltmore Hotel; W. E. Colwell, North Carolina State College, Secretary.

Feb. 6-8—Cotton States Branch, Entomological Society of America, Biltmore Hotel, Atlanta, Ga. W. G.

Eden, Alabama Polytechnic Institute, Auburn, Ala., secretary-treasurer.

Feb. 7-9 — National Garden Supply Trade Show, Kingsbridge Armory, New York City.

Feb. 14-16—Agricultural Chemicals Conference, Lubbock, Texas.

Feb. 15-17—California Weed Control Conference, Sacramento and Davis, Cal.; Oliver A. Leonard, Botany Dept., University of California, Davis, Cal., Secretary.

Feb. 15-17 — Western Weed Control Conference, Sacramento and Davis, Cal.; W. C. Robacker, U.S. Department of Agriculture, Nevada Agricultural Experiment Station, Reno, Nev., Secretary-Treasurer.

Feb. 16-17—Middle West Soil Improvement Committee's annual joint meeting of the fertilizer industry and Universities, Edgewater Beach Hotel, Chicago.

Feb. 22-24—Alabama Pest Control Conference, Alabama Polytechnic Institute, Auburn, Ala.

Feb. 22-24—Midwestern Chapter, National Shade Tree Conference, LaSalle Hotel, Chicago, Noel B. Wysong, Cook County Forest Preserve, River Forest, Ill., Secretary.

March 6-7—Fifth Annual Western Cotton Production Conference, Fresno Hacienda, Fresno, Cal.

March 14-18 — National Agricultural Chemicals Assn., Spring Meeting, Hollywood Beach Hotel, Hollywood, Fla., Lea S. Hitchner, NAO Executive Secretary, 1145 19th St. N.W., Washington 6, D.C.

March 28-30—North Central States Branch, Entomological Society of America, Purdue University Memorial Union, Lafayette, Ind.

June 10-13—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

June 28-30—Association of Southern Feed & Fertilizer Control Officials, 14th Annual Convention, Hotel Roanoke, Roanoke, Va.; Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 28-30—Seventh Regional Fertilizer Conference of the Pacific Northwest, Chinook Hotel, Yakima, Wash.

July 25-27—Northwest Association of Horticulturists, Entomologists and Plant Pathologists Conference, Northwest Washington Experiment Station, Mount Vernon, Wash.

Aug. 17-25—Tenth International Congress of Entomology, McGill University and University of Montreal, Montreal, Canada, J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ontario, Canada, Congress Secretary.

Nov. 19-20—Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J., B. F. Driggers, Rutgers University, New Brunswick, N.J., Secretary.

Graham Barker Named Emulsol Representative

CHICAGO, ILL. — Appointment of Graham Barker as industrial products technical representative has been announced by Solomon Epstein, executive vice president of Emulsol Chemical Corp., a division of Witco Chemical Company.

Mr. Barker has been assigned to the New York-New Jersey area and will have his headquarters in Newark. Emulsol produces a complete line of surfactants for the food, agricultural chemical, cosmetic and specialty chemical industries.

Michigan Chemical, Union Agree on New Three-Year Contract

ST. LOUIS, MICH. — Michigan Chemical Corp. has completed negotiations on a three-year union contract which extends to Sept. 15, 1958.

A total package of over nine cents was granted for the first year of contract, which becomes effective at once. This consisted of five cents across the board, increased group insurance and changes in plant inequities.

An automatic five cents an hour increase will be effective Sept. 15, 1956, and five cents an hour goes into effect on Sept. 15, 1957. No changes were made in the original contract, including the cost-of-living escalator clause which will be continued.

At the conclusion of negotiations, the employees and the company mutually agreed to change from the United Automobile, Aircraft and Agricultural Implement Workers (UAW-CIO) to the Oil, Chemical and Atomic Workers (OCAW-CIO).

FRUIT DAMAGE

PULLMAN, WASH. — November's cold weather caused extensive damage to fruit trees and shrubs throughout Washington. Considerable damage has been reported to apples, cherries and other tree fruits throughout Central Washington. Severe damage to strawberries, cane fruits and ornamentals throughout Western Washington also was reported.

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- Providing feature material designed to help manufacturers and mixers to do a better job, to help dealers sell and to help farm advisors and educational people make sound recommendations.
- Keeping all industry alert to current and proposed government action.
- Providing a channel through which news and advertising can reach all segments of the industry.

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